DOCUMENT RESUME

ED 096 982 95 IR 001 163

AUTHOR	Humphrey, Allan J.
TITLE	Survey of Selected Installations Actively Searching the ERIC Magnetic Tape Data Base in Batch Mode. Final Report. Volume I.
INSTITUTION	California Univ., Berkeley. Inst. of Library Research.
SPONS AGENCY	National Inst. of Education (DHEW), Washington, D.C.
REPORT NO	ILR-74-003
PUB DATE	Jun 73
NOTE	96p.; For a related document see Volume II, IR 001 164
EDRS PRICE	MF-$0.75 HC-$4.20 PLUS POSTAGE
DESCRIPTORS	*Computer Oriented Programs; Data Bases; Educational Research; *Information Centers; Information Scientists; Information Services; Librarians; Program Costs; *Search Strategies; State of the Art Reviews; *Surveys; Use Studies
IDENTIFIERS	Batch Mode; *Educational Resources Information Center; ERIC

ABSTRACT

Findings of a survey of 29 selected information centers that use computers to search the Educational Resources Information Center (ERIC) data base in batch mode are reported. The survey was conducted from December 1972 to May 1973. The report includes some general observations based on the information gathered, a brief description of two "typical" centers surveyed, more detailed descriptions of twenty individual information centers, and a table of selected data from all 29 centers. Descriptions of individual installations include information concerning services offered, mode of operation, interface with clients, charges levied for services, computing hardware and software used, staffing, and other topics. (Author)

ED 094992

ILR-74-003

BEST COPY AVAILABLE

FINAL REPORT

SURVEY OF SELECTED INSTALLATIONS ACTIVELY SEARCHING THE ERIC MAGNETIC TAPE DATA BASE IN BATCH MODE

Volume I

Allan J. Humphrey

Institute of Library Research
University of California

Berkeley, California 94720

June 1973

IR 001 163

ED 096982

ILR-74-003

FINAL REPORT

SURVEY OF SELECTED INSTALLATIONS ACTIVELY SEARCHING THE ERIC MAGNETIC TAPE DATA BASE IN BATCH MODE

Volume I

Allan J. Humphrey

Institute of Library Research
University of California

Berkeley, California 94720

U S DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

June 1973

This work was performed by the Institute of Library Research at the University of California, Berkeley under subcontract number PR 1496 to Stanford University as part of their contract with the National Institute of Education.

TABLE OF CONTENTS

VOLUME I

		Page
	ABSTRACT	i
	ACKNOWLEDGEMENTS	ii
I.	INTRODUCTION	1
II.	SCOPE OF THE SURVEY	3
III.	CURRENCY OF FINDINGS	4
IV.	ORGANIZATION OF THIS REPORT	5
V.	SURVEY METHOD	6
VI.	GENERAL OBSERVATIONS	7
	A. Current Volume of Batch Searching of the ERIC Data Base	7
	B. Types of Information Centers Surveyed	8
	C. Search Software	9
	D. Computing Hardware	10
	E. Costs	10
	F. Funding	11
	G. System-User Interface	11
	H. Use of ERIC Data Base in SDI Systems	12
	I. Some Typical Characteristics	12
VII.	REPRESENTATIVE ERIC INFORMATION CENTERS	14
	A. State Department of Education	14
	B. University	15
VIII.	SELECTED ERIC INFORMATION CENTERS	17
	A. Bradley University	18
	B. Northern Colorado Educational Board of Cooperative Services (NCEBOCS)	21
	C. Florida ERIC, Florida State Department of Education	23
	D. University of Georgia	25
	E. Indiana University	27
	F. Iowa State Department of Public Instruction	30
	G. University of Iowa	33
	H. Kansas State Department of Education	36
	I. Massachusetts Department of Education	40

TABLE OF CONTENTS (CONT.)

		Page
VIII.	SELECTED ERIC INFORMATION CENTERS (CONT.)	
J.	Montgomery County (Maryland) Public Schools	43
K.	New England Resource Center for Occupational Education	45
L.	New Mexico State University	48
M.	North Carolina Science and Technology Research Center	51
N.	North Dakota Resource Information Center (RIC)	53
O.	Ohio State University	56
P.	Oregon State Department of Education	60
Q.	Rhode Island State Department of Education	63
R.	South Carolina Department of Education	66
S.	Texas Information Service	69
T.	Utah State Board of Education	71
BIBLIOGRAPHY		73
APPENDICES		
I.	ERIC Survey Guide	75
II.	Table of Selected Survey Findings	81

VOLUME II
(available in microfiche only)

Foreword

I. Northern Colorado Educational Board of Cooperative Services (NCEBOCS)

A. Guide to IRC Services
B. List of Additional N.C.E.B.O.C.S. Products
C. Price List - April, 1972
D. Excerpt from sample monthly project report (February, 1973) showing ERIC search statistics for six local school districts
E. Excerpt from sample monthly report (January, 1973) showing total ERIC search statistics
F. N.C.E.B.O.C.S. Information Brochure

II. Florida Educational Resources Information Center (FERIC)

A. Paper giving general description of FERIC
B. Sample monthly ERIC search statistics report (October, 1972)

III. Indiana University

A. Letter announcing PROBE search system
B. Promotional brochure
C. Search request form

IV. Iowa State Department of Public Instruction

A. Iowa Pilot Program for Information Dissemination, INFORMS
B. Retrieval request form
C. List of contents of packet sent to user
D. Information sheet in packet sent to user
E. Assessment form (to be completed by user)
F. Promotional brochure (D.P.I.)
G. Promotional brochure (regional)

V. University of Iowa

A. Memo describing Univ. of Iowa ERIC retrieval system
B. Suggestions for preparing a search request
C. ERIC search statistics and charges, 1971-72.

VI. Kansas State Department of Education - Project COMMUNICATE

A. Paper describing Project COMMUNICATE - May. 1972
B. Sample monthly ERIC Activities Report - November, 1972
C. Search request form
D. Document request form
E. "Open Education"

VOLUME II (CONT.)

VI. Kansas State Department of Education - Project COMMUNICATE (cont.)

F. Promotional brochure

VII. Massachusetts Department of Education

A. Search request form
B. Computer search form
C. Evaluation form
D. Promotional brochure

VIII. New England Resource Center for Occupational Education (NERCOE)

A. Search request form
B. Document duplication request form
C. Promotional brochures

IX. University of Oklahoma

A. GIPSY/ERIC Pre Search Information Form
B. GIPSY/ERIC Post Search Information Form
C. Promotional brochure

X. Rhode Island State Department of Education

A. Brief paper on levels of service provided
B. Search request form
C. Promotional brochure

XI. South Carolina Department of Education

A. South Carolina Pilot Program for Information Dissemination - Fall, 1972
B. Monthly breakdown of origin of search requests July, 1970 - January, 1973
C. Tally of requests by topic - January, 1973
D. Promotional brochures

XII. Utah State Board of Education

A. Sample monthly report showing ERIC search statistics - January, 1973

ABSTRACT

Findings of a survey of 29 selected information centers that use computers to search the Educational Resources Information Center (ERIC) data base in batch mode are reported. The survey was conducted from December 1972 to May 1973. The report includes some general observations based on the information gathered, a brief description of two "typical" centers surveyed, more detailed descriptions of twenty individual information centers, and a table of selected data from all 29 centers. Descriptions of individual installations include information concerning services offered, mode of operation, interface with clients, charges levied for services, computing hardware and software used, staffing, and other topics.

ACKNOWLEDGEMENTS

Most of the information contained in this report was gathered on site visits to twenty-two information centers throughout the United States. Without exception all individuals interviewed were most cooperative and hospitable. It is a pleasure to acknowledge their courtesy and helpfulness which is so deeply appreciated and without which this survey could not have been made.

I am indebted to Harvey Marron of the National Institute of Education for the guidance he provided throughout the project and to Charles Bourne, Director of the Institute of Library Research, for his many helpful suggestions. Special thanks are also due to John Thelin for his editorial assistance and to Miss Sandra Jennings for her splendid typing of the manuscript.

A.J.H.

I. INTRODUCTION

In the mid-1960's the U.S. Office of Education established the Educational Resources Information Center (ERIC) to provide access to literature in the field of education. Through the long-term support of the Office of Education, and currently the National Institute of Education, ERIC has grown to become one of the leading social science information resources in existence today.

To acquire and select material for inclusion in the ERIC data base a network of "clearinghouses" was established, each with special expertise in a particular area of education. (In 1973 there were 18 ERIC clearinghouses). The clearinghouses compile bibliographic information about each document selected, index each document using a controlled vocabulary of descriptors, assign "identifiers", and in some cases write an abstract of the document. The records thus prepared are then sent to government contractors for further processing.

The two basic printed products of ERIC are the "Research in Education" (RIE) journal and the "Current Index to Journals in Education" (CIJE). Both are published monthly. Concurrently, machine readable versions of the RIE and CIJE files are produced on magnetic tape. These tapes are available at nominal cost to organizations that wish to search the ERIC files by computer. Two other files of educational material are also available on magnetic tape. These files, dealing with topics of vocational and technical education and produced and distributed by the ERIC Clearinghouse on Vocational and Technical Education, are "Abstracts of Instructional Materials" (AIM) and "Abstracts of Research Materials" (ARM).

In addition to the printed RIE journal and CIJE and the corresponding files on magnetic tape, a variety of printed listings and indexes are published to aid the searcher. Also, the ERIC Document Reproduction Service offers both microfiche and printed copies of all non-copyrighted reports announced in "Research in Education."

A complete description of the ERIC system including its scope of coverage, products, services, and operational components may be obtained from the National Institute of Education, Washington, D.C. 20202.

With the creation and monthly updating of machine readable files and their ready availability, much searching of the ERIC document collection is now being done using computers, both in "batch" mode and "on-line". ("Batch mode" is the procedure of submitting one or more independent search requests to be processed by the computer with no interaction between machine and searcher. Typically, in batch mode several hours elapse between submission of the search requests and receipt of the computer output. "On-line" operation implies an interaction between computer and searcher during the search process that allows immediate feedback of results and immediate modification of the request when desired.) There are currently over 100 organizations that receive

the ERIC tapes on a regular subscription basis from the ERIC Processing and Reference Facility, the government's contractor that distributes the ERIC tapes.

To learn of the manner and extent to which the ERIC tapes are now being used, the National Institute of Education funded a project to survey in detail those organizations which are actively searching the ERIC tapes. This survey was carried out during the period December, 1972 - May, 1973 by the Institute of Library Research of the University of California.

II. SCOPE OF THE SURVEY

This survey was limited to those information centers (throughout this report the term "information center" is used to describe any unit, either formally or informally organized, that offers computer searching of the ERIC data base to its clients, either for a fee or without charge) that search the ERIC tapes in batch mode. While it is recognized that some information centers do a great deal of on-line searching, and that on-line searching constitutes a significant portion of all machine-searching of the ERIC collection, the study of on-line searching installations was not within the scope of this project.

Since it was not feasible for this study to attempt to contact every organization that subscribes to the ERIC tapes, only those installations believed to be actively using the tapes were contacted. This resulted in the surveying of 29 information centers. Of these 29 installations, 22 were paid site visits; telephone interviews were held with key staff members at the remaining seven installations. Each of these centers is identified in Appendix II and the ERIC searching activities of 20 of the installations are described in further detail in later sections of this report. Detailed descriptions are not provided for the seven installations surveyed by telephone nor are they given for two centers visited in person due to the fact they run so few ERIC searches that they do not qualify as "active" users of the ERIC tapes.

III. CURRENCY OF FINDINGS

Many of the information centers surveyed on this project had just begun computer searching of the ERIC data base a few months prior to the survey. They were still in the early stages of production operation and had not yet reached a "steady state" situation. Some were in the process of undertaking more vigorous promotion of their services which could be expected to increase the volume of requests processed. Computing facilities at data processing centers change from time to time. Flunctuations in financial support of an information service obviously result in changes in the operation. These and other factors may cause an information center to change markedly in a rather short period of time.

Therefore, in reading this report one must bear in mind that what is reported represents the situation that prevailed at that particular center at the time of the survey. Operating procedures, volume or type of service, computing hardware, and/or other factors may have changed since the survey was made. To obtain any up-to-the-minute information about a specific center one obviously must contact that center directly.

IV. ORGANIZATION OF THIS REPORT

There are two volumes to this report. Only this first volume is being prepared in hard-copy form. Volume II will be available in microfiche form only.

Volume I contains some general observations regarding the searching of the ERIC data base by computer at the various centers, a general description of "typical" operations at a state education department and on a university campus, a more detailed description of the information services provided at twenty selected centers, and a table of key data gathered (Appendix II). Also included is a bibliography of published material relevant to this survey.

The emphasis of the individual site reports is on type of service provided, mode of operation, interface with the client, and staff requirements. While computer software is identified no attempt is made to describe computer programs in detail. Each site report includes the date of the survey and the name of the primary person interviewed. This is the person the reader should contact for any further information desired.

Concerning volume of activity, most centers reported this in terms of "number of questions processed by the computer". This differs from "number of client requests" in that one request for information may be represented to the computer as two or three different machine search questions. However, the overwhelming majority of requests for information that arose in all centers surveyed were represented to the computer as single questions. Thus, the data reported for volume of activity may be considered consistent for comparative purposes.

Volume II contains system descriptions, input forms, evaluation forms, promotional brochures, miscellaneous reports, and other materials gathered from twelve individual information centers. It could be regarded by the reader as a large appendix to Volume I. The reader is urged to review the material contained in Volume II should he wish more information about any of these twelve centers than is contained in section VIII of this volume.

Numbers appearing in parentheses occasionally throughout this report refer to documents listed in the bibliography section.

V. SURVEY METHOD

At the outset of the project a survey guide (see Appendix I) was prepared. It was expected that not all topics itemized in the guide would be applicable to every installation. It was also expected that in many cases data that would be appropriate to this study and applicable to a particular center would not be available. This was especially true for centers that had just recently begun operations. The survey guide was regarded as a topical list to be used during interviews to insure that no major points were inadvertently omitted; it was not used as a rigid specification for the information that was to be gathered at each center. A few centers requested that the survey guide be sent to them in advance so they would know what kind of data were being sought. This was done. However, in most cases people to be interviewed merely asked a few questions over the telphone at the time the survey appointment was made.

Some centers were interviewed by telephone but most were visited in person. Typically discussions would be held, either singly or jointly with approximately three people who normally were the project director, an information specialist or librarian who dealt directly with clients, and someone directly involved with the computing processing. In many instances this last person was the author of the software being used. Site visits usually lasted from 3-6 hours. Tape recordings were made of the interviews on all site visits. Printed materials such as advertizing brochures, search request forms, evaluation forms, and miscellaneous project reports were collected. These are presented in Volume II of this report.

VI. GENERAL OBSERVATIONS

A. Current Volume of Batch Searching of the ERIC Data Base

At the time of this survey the total number of batch-mode retrospective searches being carried out each month by the 29 centers surveyed was approximately 2,000. This figure does not include, of course, searches made by other batch-mode centers or centers that search on-line. In addition to these retrospective searches, seven of the 29 installations maintain selective dissemination of information (SDI) profiles for clients for whom computer searches of the ERIC data base are made upon receipt of each update to the files. Some of these seven centers did not have data readily available on the number of ERIC SDI profiles they were currently processing. However, it appears that in early 1973 a total of approximately 1,000 SDI profiles were being matched against each quarterly update of the ERIC data base at the installations surveyed, with the University of Georgia accounting for 835 of these.

Data on monthly searching activity were available from 28 of the 29 centers surveyed. The average number of retrospective computer searches of the ERIC data base per month ranged from two (University of Calgary) to 250 (Resource Information Center at Grand Forks, North Dakota). Five installations reported average monthly activity of five searches or less. Three of these were centers that were just beginning to offer ERIC computer searching to clients and their volume could be expected to rise quickly. A fourth, the University of Oklahoma, had experienced a sharp decline in ERIC machine searching after a long period of rather substantial activity. The fifth, the New England Research Application Center (NERAC), is an organization that offers highly specialized information services to its clients and is quite atypical of the installations surveyed.

The 28 centers reporting volume of ERIC computer searching are distributed as follows according to monthly volume of retrospective searches carried out:

average number of searches per month	number of centers
less than 25	6
25-75	11
100-150	9
more than 200	2

If one considers that a center should conduct a minimum of 25 searches each month to be classified as an "active" ERIC searching center then only 22 of the installations reporting volume data would be so classified. The average number of ERIC searches conducted by computer each month at these 22 centers is 90. Appendix II lists average monthly activity for each individual installation.

B. Types of Information Centers Surveyed

Of the 29 centers surveyed, four general organizational categories may be identified:

1. State departments of education serving department staff and teachers and administrators within the state. Eleven such centers were surveyed (Florida, Iowa, Kansas, Massachusetts, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, and Virginia).

2. National, regional, or local centers serving teachers and administrators other than on a state-wide basis. Five such centers were surveyed.

3. Universities serving faculty and students. Centers at ten universities were surveyed. These were at the Universities of Calgary, Georgia, Illinois, Indiana, Iowa, Minnesota, Oklahoma, Bradley University, New Mexico State University, and Ohio State University.

4. Special centers. Three centers surveyed were organizationally unique.

From the standpoint of general operating procedures and service to clients the centers in category 2 above are quite similar to those of state departments of education (category 1 above). This is particularly true of the Montgomery County (Maryland) Public Schools and the Texas Information Center. The New England Resource Center for Occupational Education (NERCOE) provides a service for its clients much like that provided by a typical state department. However, NERCOE charges clients for ERIC searches whereas state departments generally conduct searches free of charge. The National Library of Canada also charges its clients for searching. The Northern Colorado Educational Board of Co-Operative Services (NCEBOCS) provides free information service to clients in Colorado while patrons outside the state are served through contracts between NCEBOCS and the client's state department of education. NCEBOCS offers a greater range of information products and has a higher volume of activity than does the typical installation surveyed. Also, unlike most centers, NCEBOCS does not maintain any field agents to serve as an interface between NCEBOCS and its patrons.

University ERIC searching centers (category 3 above) are generally organized less formally than state departments of education. Because the patrons of university centers are generally located on the campus they play a more active role in the preparation of search requests and the review of search output than do clients of categories 1 and 2 above. Copying services for microfiche and printed materials are not generally offered by campus ERIC centers due to the ready accessibility of original documents. Also, many university centers levy a modest charge for searching to help defray operating expenses. These centers do not offer the range of information products nor the completeness of searching service typical of most state departments of education. Primarily they offer

machine searching of the ERIC data base, leaving review of results and any supplemental manual searching to the client.

Section VII of this report describes typical centers of category 1 and category 3.

The special centers surveyed (category 4 above) are the Resource Information Center (RIC), the North Carolina Science and Technology Research Center (NCSTRC), and the New England Research Application Center (NERAC). RIC is now organized as a private corporation. It offers services to its patrons much like those offered by the typical state department of education. NCSTRC offers computer searches of many data bases, of which ERIC is one. Much of NCSTRC's activity is involved with searching other files for industrial patrons. Clients requesting ERIC searches are normally not served directly but through their respective university libraries. NERAC is primarily concerned with providing highly specialized information services to industrial clients. In the depth of service offered they are unique among the installations surveyed. They maintain and search a variety of files, one of which is ERIC. However, the number of ERIC searches they run is so small that NERAC is not described in detail in section VIII of this report.

C. Search Software

A total of 17 different search programs are represented by the 29 centers surveyed. Three programs serve the needs of the eleven state departments of education. Six state departments use the North Dakota Resource Information Center (RIC) program (1), four use modified QUERY (2) and Oregon uses a program developed by a service bureau (3). Each university center uses its own locally developed program with the exception of the University of Minnesota which uses the University of Iowa program.

In all, seven centers use the RIC search program, five use modified QUERY, three use a form of the Iowa program (5) and the remaining 14 centers all use some different search software not used by any of the other centers. The fact that a great number of computer programs are used to search the ERIC collection seems to stem from various inefficiencies of the original QUERY program that was made available to information centers at the time ERIC data tapes first began to be distributed. Many centers used the original QUERY program for a period of time and then sought more efficient software. Dr. Dave Altus of the South Carolina Department of Education while at New Mexico State University developed an extensive series of modifications to QUERY that resulted in a program that is now used by several installations. Mr. Bruce Hemminger of the University of Iowa Computer Center developed a computer search program that had its origin in QUERY but has now evolved to be far different from QUERY. This program is now used at three universities. Dr. Ed Krahmer and his colleagues at the University of North Dakota developed a two-step search program that searches an inverted file quickly and inexpensively. Development of this program, which is the most widely used ERIC search program, was undertaken due to dissatisfaction with the performance of QUERY. The fact that nearly

every university ERIC information center has developed its own search program can probably be attributed to an environment in which a clearly defined need for improved software existed, computer science students interested in topics of file management and information retrieval were seeking projects, and the required computing facilities were readily available.

From the user's standpoint all of the 17 different search programs in use provide satisfactory searching and output capabilities. For the intermediary between patron and system preparation of query requests in proper format for computer processing is not difficult for any of the search programs. Some of the programs contain certain features that are not really required for ERIC searching and are seldom used. If one were to ask, "Are all these different programs necessary?", the answer would be, "No." However, considering the requirements and circumstances under which many of the programs were written, the author finds no fault with the existence of 17 different computer programs that are used to search the ERIC tapes. Many of the programs are written in assembly language. Considering the efficiencies of assembly language over higher level computer languages and considering the variety of machines used to run ERIC searches, there is no one program that could be used at all centers that would achieve the level of computing efficiency across all installations that is now achieved by this family of search programs.

D. Computing Hardware

All centers surveyed, except three, search on IBM equipment. The three other computers represented are the CDC-6600, RCA Spectra 70/40, and UNIVAC 9400. Of the IBM computers used, one is an 1130, seven are some model of 370 ranging from a model 135 to a model 165, and the remainder are some model of 360 ranging from a model 25 to a model 75.

E. Costs

Machine searches of the ERIC tapes are generally free for users of a state department of education information center. On a university campus the cost typically lies between $0 and $10 per search for on-campus users. Off-campus clients generally pay a fee in the neighborhood of $10 per search. The cost of a search is much higher at some of the specialized centers where much more service may be provided. (See Appendix II for specific costs per search.)

While an attempt was made to determine general cost levels for operating an ERIC information center providing batch searching no "typical" data were forthcoming. At virtually every center surveyed either detailed cost data had not yet been gathered on the various activities within the center or some special subsidies were provided that would skew any cost data presented. It is quite common for computing service to be provided to a center on an extremely low-cost basis and on university campuses there are commonly many subsidies provided either directly or indirectly that make it difficult to determine accurate costs of operation.

F. Funding

Many of the ERIC information centers located at state departments of education are currently funded wholly or in part by grants from the National Institute of Education. Such funds have been provided on a rather short-term basis to support various centers during their initial phases of operation. It is not expected that any center will receive long-range federal financial support to sustain their ERIC searching activities. Continuation of service over an extended period of time will, for many centers within state departments of education, depend upon the availability of funds from other sources.

The ERIC centers located on university campuses are, in general, supported by their local institutions. Support tends to be in the form of informal subsidies that provide a moderate amount of staff time of reference librarians, computer programmers, and faculty administrators, as well as computing time for carrying out the ERIC searches by machine. Some universities underwrite the entire operation of a center in this way, while others attempt to recover the actual computer costs by levying a modest charge for each search. It appears that this mode of financing ERIC searching on university campuses will prevail for the foreseeable future unless the volume of searches processed increases to the point of becoming such a burden to the units involved that a more formal funding procedure would be demanded.

Operation of the special information centers surveyed (see section B) is maintained largely by income derived through contracts with client organizations. Two of the three of these centers provide searches of many other data bases in addition to ERIC and consequently the continuation of their ERIC searching service is not entirely dependent upon their ERIC search activity alone.

G. System-User Interface

At nearly every information center surveyed the user has the opportunity of discussing his need for information with a representative of the center. In the case of state departments of education this representative is usually a field agent who, though devoting but a portion of his time to this activity, is familiar with the services available to the user. On university campuses the typical interface person is a reference librarian in the Education Department library.

The field agent or reference librarian acquaints the user with the basic data files and retrieval tools available in the ERIC system. The interface person advises the user on which ERIC file (or files) should be searched for best results. Having thoroughly discussed the user's request with him, the field agent or librarian then takes the responsibility for submitting the search request to the system. For field agents of state education departments this generally means transmitting the request to the ERIC information center where it is encoded for computer processing; at universities the librarian often encodes the question and sends it directly to the campus computer center for processing. Output from the search in the form of printed citations, often with abstracts included, is routed to the user through the

interface person. If the user wishes to modify his search request or obtain microfiche or hard-copy materials from the center (if available from the center), he does so by working with the field agent or librarian.

The user of the typical ERIC retrieval system surveyed is not required to be familiar with ERIC at all. He does not need to know anything about the ERIC thesaurus, the structure of the ERIC data files, or preparing search requests for computer processing. He merely needs to contact the local field agent or the reference librarian at his campus Education Department library and discuss thoroughly with this person his specific need. This interface person normally remains the user's only direct contact with the information center, both for submitting the request and for any follow-up service that is required after the search is processed.

For a few of the centers surveyed the majority of users are located out-of-state and served under contract. Clients of these centers may deal directly with the centers by mail or they may work through local information centers in their own areas which in turn deal by mail with centers surveyed. Failure to have face-to-face discussions with a system representative may prove awkward for the client occasionally but appears to be no major problem for those centers that offer service on this basis. Clients of these centers are not normally required to encode their own search requests.

H. Use of ERIC Data Base in SDI Systems

While the primary use of the ERIC tapes is for retrospective searching some centers routinely search the tapes as part of an overall SDI service. Prime examples of this are the centers at the University of Georgia and Ohio State University each of which have massive SDI services covering many mechanized data bases of which ERIC is one.

The center in Tennessee has a substantial SDI operation involving the ERIC tapes and the two centers in Canada are enlarging their now modest ERIC SDI services.

I. Some Typical Characteristics

The following characteristics are noted because they apply to virtually all centers surveyed:

1. The service provided represented the client's first contact with a computer-based information retrieval system. For most clients it was also their first contact of any kind with ERIC.

2. The "typical" question presented to the computer for processing is in the form of the AND of two OR-groups, i.e., the question dealt with two concepts each of which could be expressed by one of several different terms.

3. Output from machine searching that is sent to the user consists

of full bibliographic citations, assigned index terms, and document abstracts. This material is printed directly by the computer. All alphabetic information appears in upper case letters.

4. An effort is made to screen the computer output for clearly irrelevant material before sending it to the client.

5. Promotion of the service generally took the form of mailing out brochures describing the service and making presentations to prospective clients, except at universities where the major promotion work was done by word of mouth.

6. While it is recognized that there are certain weaknesses in the ERIC thesaurus, no routine procedure has been established by the centers surveyed to report these to central ERIC as they are discovered.

7. Problems concerning magnetic tapes constituted virtually the only feedback from the centers surveyed to the ERIC Processing and Reference Facility. Centers surveyed reported that the ERIC tapes normally arrive promptly and can be processed without difficulty.

8. Evaluation of service rendered is recognized by all centers to be important but little has been done in a formal way other than to solicit comments from clients.

9. It is generally felt that to establish an information service similar to the typical ones surveyed (assuming funds, qualified staff, and equipment were available) would require 4-6 months. This is the time it would take to establish procedures in a new setting and to build up a clientele. It is believed that transfer of computer software could be accomplished in a matter of days or, at most, a few weeks.

VII. REPRESENTATIVE ERIC INFORMATION CENTERS

Typical operations at a state department of education and on a university campus are now described, these being the two most common types of centers where batch searching is done.

A. State Department of Education

In general, this type of center provides ERIC searching services to its clients through intermediaries known as field agents or extension agents. The number of such agents varies from three or four to twenty. Usually the agents draw no direct salary from the central department, but rather, they assume their field agent's duties as an additional part of their regular job assignment. Training of the field agents is a task of the state department, of course.

Typical users are classroom teachers (kindergarten through high school, and occasionally community college level), school principals, counselors, district superintendents, and other regional and local administrators as well as staff of the state department itself. In many states an attempt is made to provide service throughout the state while in other states service is still in a pilot stage and is provided only to selected districts.

The normal procedure followed for a search is for the client who has a need for information to first discuss this need with the field agent. If the field agent feels a search of the ERIC data base is appropriate, he transmits the basic question expressed in natural language to the state department. This usually follows a thorough discussion or negotiation with the client (approximately 30 minutes) to pin down as closely as possible just what kind of information the client is seeking. Upon receipt of the question from the field agent, a staff member of the information center encodes the question in the terminology of the ERIC thesaurus and in the format required by the search software being used. Seldom is the encoding done by the field agents. The encoded questions are then sent to the computer center for key-punching and computer processing. The computer center is typically located within some department of the state government that may or may not be the department of education. Usually ERIC searches are run at off hours (middle of the night or week-ends) thereby keeping machine costs to a minimum. Output from the search is delivered to the staff member who prepared the question. At this point the output is generally reviewed to ensure that it is reasonable in terms of quantity and quality. In some states this review is quite thorough, an effort being made to delete those individual documents that appear to be irrelevant. The results of the search are then returned to the client via the field agent. The results are generally accompanied by an evaluation form that

enables the client to convey to the state department his feelings about how satisfactory the search service was to him and how well the retrieved "documents" filled his initial need for information. In many states a form is provided with the output that allows the user to order microfiche copies of the hits from the state department. In virtually all states the central department will make fiche readers available to clients who don't have local access to one. In many states the central information center will provide Xerox copies of documents upon request (usually at a slight charge). The total turn-around time for providing this search service is generally one to two weeks.

It is quite common for state departments of education to augment the machine search with some manual searching although this is seldom extensive due to limitations on resources. Several states have identified certain topics about which questions are frequently asked. For these, "packages" have been prepared that contain bibliographies of relevant ERIC documents. At such centers incoming questions about these topics are handled by mailing back the appropriate "package" and not making a computer search unnecessarily. The number of such "packages" ranges from about two to twelve and in some cases up to 20% of the incoming requests can be handled in this way.

B. University

Information centers on university campuses generally serve graduate students and faculty members primarily in the field of education. Some clients are affiliated with other academic departments on the campus but comparatively few searches are made for off-campus clients. Since virtually all clients are "on-site" there is much closer interplay between the individual client and the information center than is the case with state departments of education.

The information center is typically located in the Education Library on campus with very close liaison with the campus computing center. Usually the search program used has been written by an employee (often a student) who maintains a continuing interest in the smooth flow of operation between the information center and the computer center. The software tends to be tailored to the specific needs of the campus, whereas all state departments surveyed use programs developed elsewhere.

The link between the client and the system is generally a librarian in the Education Library. In close cooperation with the patron, the librarian encodes the search request and submits it to the computer center. It is not uncommon for experienced clients to encode their own requests. Output from the machine search is reviewed almost immediately with the patron. Usually the client can review intermediate search results (e.g., number of hits) and modify the requests immediately if desired. All detailed review of output is left to the client, i.e. no apparent irrelevant hits are deleted

without his review. Due to the proximity of the computer, there is generally very little delay in processing requests. Typical turn-around time for the entire search process is 2-3 days.

All campuses surveyed have copies of the ERIC collection on microfiche together with hard-copy of a substantial portion of the collection. Campus users can easily go directly to the fiche or hard copy and, therefore, copying services are not generally provided by university information centers.

VIII. SELECTED ERIC INFORMATION CENTERS

This section provides a detailed description of the services offered and operations at twenty selected information centers.

A. BRADLEY UNIVERSITY

Bradley University
Project "AIDE"
Peoria, Illinois 61606

Dr. Robert Thomson, Project Director

January 16, 1973

Bradley University provides ERIC searching service through project AIDE, Automated Information Dissemination in Education. This project is supported entirely by the University. It is a co-operative venture of the College of Education, the University Library, and the University Computer Center. Service began in October 1970. A key impetus for establishing the ERIC searching service at Bradley was provided when an undergraduate student developed a set of computer programs to search the ERIC tapes as part of his independent research at the University.

Nearly all users of AIDE are students and faculty members on the campus. The great majority of users are graduate students in the College of Education. The faculty submit search requests at a higher rate than at any other university surveyed, accounting for 20% of all searches. Undergraduates in education submit a moderate number of searches. While AIDE does not actively promote use of the system by off-campus users, approximately 7% of the searches ran during the first two years of AIDE service were off-campus requests. Most of these were by recent graduates who had used AIDE while students. There is minimal formal promotion of AIDE. Most users learn of the service through personal contact with faculty and other student users. The primary use made of AIDE is to assist in the preparation of class reports, term papers, and dissertations.

The interface between the client and AIDE is the librarian at the reference desk in the Education Library. The service is viewed primarily as a library function, not a computer center function. Clients discuss their need for information with the reference librarian who, using the ERIC thesaurus and locally generated postings lists, formulates the search request in the form required by the Bradley search program. Encoded questions then go to the computer center for key-punching and processing. Depending upon the number of searches to be run, computer searching may be done within a few hours or within a few days while waiting for more requests to come in. It is desirable to carry out the machine searching in batches of several searches for reasons of economy. In no case does turn-around time exceed one week.

When the output is returned to the Education Library the reference librarian normally reviews it with the client. Users are encouraged to refine their results by modifying the request and resubmitting. As a matter of policy searches producing more than 100 hits are always

resubmitted. Either the questions are made more specific or output is limited by date.

Bradley has a microfiche copy of the ERIC collection. Users have direct access to it. In addition, Bradley has access to a large collection of journals through a regional data bank in Chicago. Users in Peoria can order journals from this data bank with a 2 or 3 day turn-around time.

Users are given an evaluation form along with their output whereby they can report how well they have been served by AIDE. Generally, the users fail to return this form. However, perhaps the most telling observation is that use of the service has expanded steadily since its inception.

Use of the AIDE searching system now averages 67 searches per month. Use by all graduate students on campus (not just those in the College of Education) last semester averaged .44 ERIC searches per student. Faculty use in the College of Education averaged 1.38 ERIC searches per faculty member last semester.

There is no cost to the client for retrieval services for those users on-campus. Off-campus users pay a fee of $10.00 per search request.

Staffing for project AIDE consists of a portion of the time of each of the following: the project director, two reference librarians, and the computer center director. In addition, a graduate assistant at the computer center is supported by the project 15 hours per week to handle computer operations related to AIDE.

Bradley developed its own software in 1970 to search the ERIC tapes obtained from LEASCO. The software has been improved since its original implementation. This system is known as SLIC, Search of the Library Information Collection. Highlights of the system are the following. Bradley receives the serial RIE and CIJE tapes from LEASCO. Inverted search files and manual postings listings are created from the LEASCO tapes. The search program has a "simulation" mode which essentially scans the inverted file to report the number of hits. If the number of hits is unreasonable the request may be reformulated or date restriction imposed. Printing of full output, including abstracts, is subsequent to the "simulation" run. The search program incorporates "keyword type" logic whereby descriptors may be sought on the basis of prefixes, suffixes, strings of specified characters, specified full words, etc. It was not reported what percentage of search requests took advantage of these special features of the search program. A thorough discussion of the various elements and features of SLIC is contained in an extensive program write-up (4).

Prior to the date of the site visit to Bradley, SLIC was run on

an IMB-360/40 computer that had a 128-K core, 3 IBM-2314 disk packs, and two tape drives. The systems operated under DOS. At the time of the survey, new equipment was being installed. This is an IBM-370/135 computer with 144-K core, 4 IBM-2314 disk packs, and two higher speed tape drives.

Dr. Thomson reports that project AIDE has had a marked impact on several specific courses offered by the College of Education. He cites one of his own courses as an example. In a course entitled "Schools in Contemporary Society" Dr. Thomson used to require one or two class reports each semester. He now requires six. This is feasible because of the tremendous savings in time devoted to literature searching brought about by AIDE service. Of equal importance is the fact that, not only is searching much faster, but it is more thorough. Thus many more points of view can be brought into a discussion of a particular topic than was the case when all searching had to be done manually.

In addition to the ERIC files, Bradley has two other machine-readable data bases. One is a file of over 6,000 titles of hard-back books in the field of education; the other is a special file on drug use and abuse.

B. NORTHERN COLORADO EDUCATIONAL BOARD OF CO-OPERATIVE SERVICES (NCEBOCS)

Northern Colorado Educational Board of Co-operative Services
(NCEBOCS)
830 S. Lincoln Street
Longmont, Colorado 80501

Rocky Petrocchi

March 21, 1973

The Northern Colorado Educational Board of Co-operative Services (NCEBOCS) is one of 17 such regional organizations in the state of Colorado. It is supported primarily by the six local school districts it serves. Some federal support is provided for certain specific programs conducted by NCEBOCS. Founded in 1970, NCEBOCS now has a total staff of approximately 45 employees. The information dissemination activities are conducted by the Information Retrieval Center which has a staff of seven of whom five are information consultants.

This center is unique in that it not only serves the six local districts that support it directly and other school districts within Colorado as well, but NCEBOCS also contracts to provide retrieval services to many organizations outside the state.

NCEBOCS prepares four types of information products to assist users. These are:

PET - Packets of Educational Topics
CAT - Catalog of Computerized Searches
CAP - Current Awareness Profiles
SID - Individualized Search in Depth

The first three of these products are all pre-packaged, ready-to-mail collections of citations and abstracts of ERIC documents dealing with specific topics of education. Approximately 60 PET packages have been prepared on various subjects and over 300 Catalogs of Computerized Searches are now available for immediate distribution to clients. A detailed description of these products together with indexes of the individual topics covered may be found in the GUIDE TO IRC SERVICES published by NCEBOCS's Information Retrieval Center (see Volume II). At the time of this survey two of the five IRC information specialists were working full-time on the preparation of new packages in the series. Specific packages from the PET, CAT, CAP series may be ordered directly by title. Filling a request of this type requires no additional computer processing.

The product that represents the most intensive level of service is the SID. This always leads to a computer search of the ERIC files.

Virtually all SID requests come in by mail on forms provided by NCEBOCS. There are no field agents to serve as interfaces between patrons and the system. Upon receipt of a request for a SID search the information consultant reviews the statement of the client's need and from this encodes the question for machine search. An in-house UNIVAC-9400 is used for searching the ERIC files. After computer processing the results are carefully analyzed by the information consultant to delete obviously irrelevant citations. The package of materials returned to the client includes an evaluation form and an explanation of just what it is he is receiving and what the format of the computer print-out is. Normal turn-around time to the client is two to three weeks.

On occasion if a client specifies a CAP package be sent the information specialist may override this and conduct a machine search for the client in order to give him the fullest and most current information available.

NCEBOCS receives the RIE, CIJE, AIM, and ARM files. Normally machine searches are run on both the RIE and CIJE files.

NCEBOCS has developed its own software system to support the activities of the Information Retrieval Center. These programs were first developed for use on a UNIVAC-9300 and more recently they have been running on a UNIVAC-9400 that has a 98-K memory. The search program is capable of searching on descriptors, identifiers, author name, and title words, but not on the text of abstracts. While many other installations use NCEBOCS facilities for searching, the NCEBOCS software system has never been installed at any other site.

NCEBOCS recently developed an on-line version of their search program. They use this occasionally for "exceptionally difficult" queries where it is desirable to pose the question in several different ways to ensure satisfactory retrieval. The immediate turn-around of an on-line system is very attractive for processing this type of query.

NCEBOCS keeps thorough monthly statistics on the volume of services they provide. These are broken down by PET, CAT, CAP, and SID products distributed. Most users are teachers, administrators, consultants, and specialists in elementary and secondary education.

Currently approximately 215 SID requests are filled each month, roughly half of which are for Colorado clients. Nearly half of all requests for service are filled by SID searches.

Service is free to Colorado users. Out-of-state users are served under contract. Presently most of the out-of-state users are in western states.

C. FLORIDA ERIC, FLORIDA STATE DEPARTMENT OF EDUCATION

Florida Educational Resources Information Center (FERIC)
Department of Education
Knott Building
Tallahassee, Florida 32304

Robert E. Hancock, Administrator

February 27, 1973

The Florida Educational Resources Information Center (FERIC) is a facility of the Florida State Department of Education operating within the Communications Media Service Center. FERIC began using the ERIC data base in 1968 with a strong emphasis on providing information service in the area of vocational and technical information. In 1970, through a mandate from the Department of Education, service was expanded to full ERIC coverage. FERIC now receives the RIE, CIJE, AIM, and ARM files.

Educational information services are provided throughout Florida by a network of 67 satellite centers that may be viewed as extensions of the central FERIC facility. These satellite centers are located on university campuses, at area vocational-technical schools, at junior colleges, and in local school districts. (See description of FERIC in Volume II.) A satellite may have only one or many staff members who assist clients in obtaining information from the ERIC collection. Five of the satellite centers that are located at universities have microfiche copies of the ERIC documents. No personnel at satellite centers receive any salary support from FERIC.

A unique feature of FERIC operation is that the basic RIE and CIJE files are physically partitioned into sub-files according to the clearinghouses that submitted the documents. FERIC does not normally search the entire ERIC files but just the sub-files that contain the material submitted by those clearinghouses considered by FERIC to handle material relevant to the particular search.

The Florida Department of Education has responsibility for all public education from kindergarden through post-doctoral programs. As a result of this FERIC clientele consist of classroom teachers, school principals, administrators, students and faculty in higher education, and staff members and consultants of the Department of Education. FERIC maintains detailed records of who their patrons are and what services they receive. (See Volume II for sample reports.)

The guiding philosophy of FERIC is to provide as thorough service as possible to the client. The client normally deals directly with an agent at a satellite center who, after discussion with the client, determines whether the request can be filled at the satellite

center. If it cannot, it is forwarded to FERIC. There approximately one hour is spent planning the best strategy for filling the request. A manual search of available materials may be called for or a computer search of some of the ERIC sub-files or, perhaps, a combination of both. If a computer search is undertaken the encoding of the search question is always done at FERIC. Indeed, the client and the agent at the satellite center do not know whether a computer search will be appropriate or not for a given request. Output from the computer search, which is a print-out of the full document record, is reviewed carefully to delete any obviously irrelevant citations. Then hard-copy of abstracts and journals articles and microfiche copies of full documents are sent to the client along with the computer output. If the manual and/or computer searches produce unsatisfactory results the client is often referred to known experts, usually but not necessarily within the state, who may be able to help them.

All FERIC services are provided free of charge to the partron.

While the number of computer searches in 1972 varied substantially from month to month the average per month was approximately 40. It must be remembered that this does not represent the total use of the ERIC collection in Florida. Many requests are filled at the satellite centers. It is estimated that the centers that have ERIC on microfiche fill 75% of their requests locally. All computer searching of the ERIC tapes in Florida is done by FERIC; no satellite center does machine searching.

FERIC searches the ERIC data base using the modification of QUERY provided by the South Carolina Department of Education. The programs that create and maintain the individual sub-files of ERIC were written by the Department of Education computer center staff in IBM-360 assembly language.

Computer searches are run on an IBM-360/40 at the Department's computer center.

FERIC has produced indexes to sub-sets of the ERIC file based on specific topics of interest. These indexes constitute very complete bibliographies of specific subjects. Nine such indexes have been produced to date; more are planned.

FERIC provides a limited SDI service based on manual methods. About 100 clients, most of them in agencies of the state government, receive materials intermittently from FERIC on topics known to be represented on the ERIC tapes and microfiche. FERIC resources include a library of 6,000 titles in hard-copy and about 6,000 current awareness articles from magazines and Florida newspapers.

FERIC staff consists of approximately 11 FTE employees. The present staff can process about 200 requests maximum each month at the level of service described.

D. UNIVERSITY OF GEORGIA

University of Georgia
Computer Center
Athens, Georgia

Dr. James Carmon
Margaret Park

March 2, 1973

Machine searching of the ERIC data base at the University of Georgia is conducted by the literature services section of the University Computer Center as a part of their truly large-scale information retrieval operation. This service is operated by the computer center quite independently of the University Library and is supported largely by University funds.

The University Computer Center offers both retrospective and selective dissemination of information (SDI) retrieval services from any of twenty commercially available data bases, the ERIC files among them. Service is offered not only to the University of Georgia community of students and faculty but to outside users as well. All retrieval services provided are based on the use of the computer.

Services began in mid-1968. The RIE and CIJE were acquired and merged into the system in mid-1970. The AIM/ARM files have just recently been added to the system.

When a patron wishes to search the ERIC collection he discusses his request with a staff member known as a data base manager. The data base manager encodes his query for machine processing using the ERIC thesaurus. The query is then run on the computer. The computer output is reviewed briefly by the data base manager to see that the number of hits is reasonable before it is returned to the patron. The procedure is the same for retrospective or SDI searches except that the output from a client's first SDI search is always carefully reviewed to ensure that his interest profile was properly written. Operationally the only difference between a retrospective search and an SDI search is in the portion of the data base examined.

It is estimated that over 90% of the requests for ERIC searches come from University of Georgia faculty or graduate students. The University's College of Education forbids its undergraduates to use the mechanized retrieval service, apparently to force them to learn manual retrieval methods. Once a typical user receives the output from his computer search he may wish microfiche or hard copy of the material retrieved. There are two microfiche collections of ERIC on the Athens campus and several other copies scattered throughout the state. However, reproduction services are a function of the University

Library, not of the computer center.

To better acquaint prospective users with the retrieval services offered the data base managers periodically conduct seminars in appropriate academic departments. Also brochures are widely distributed at the start of each academic year, not only on the Athens campus but throughout the 31-campus network of the University.

Of the twenty data bases maintained several are of scientific material. It has been the experience at Georgia that with scientific data bases SDI searches are more in demand than are retrospective searches. The opposite is true with the ERIC files. The users of the ERIC data base pose many one-time demand retrospective queries and relatively few requests for current awareness SDI searches.

The system is presently processing about 100 retrospective searches of the ERIC file each month. There are now 835 SDI profiles in the system that call for ERIC searches.

The retrieval service is free to users in the University of Georgia system. Outside users pay $35 per question per year searched. To search five years of both RIE and CIJE would cost $35x5x2=$350 per query. The annual cost of SDI service to outside users is $10 per profile per update; thus, to maintain one profile for the RIE file would cost $40 per year.

All software used in the system has been developed locally. All data bases are maintained in a common format so that a single search program can process them all. Thus all data base updates must be reformatted upon arrival. With twenty different files this requires considerable software. The search program, which scans a serial file, can search on descriptors, title words, and the text of abstracts. Generally ERIC searches involve searching on descriptors only. The programming languages used for this software development have been IBM-360 assembly language and PL/1.

The literature service of the computer center employs 11 people, of whom 3½ FTE are data base managers. An information specialist with a master's degree in education is the data base manager for the ERIC files.

The entire literature service now has 6,000 clients. Considering all data bases 10,000 machine searches are run each month. The average hit rate is about 20 hits per query. Approximately 2,400,000 hit notices were distributed in 1972 to the clientele. The total number of records in all files now represents approximately 5,000,000 documents with the total of all updates running about 1,000,000 new documents per year.

E. INDIANA UNIVERSITY

Indiana University
Project "PROBE"
Bloomington, Indiana

Eva Kiewitt
Head, Education Library

January 17, 1973

The University of Indiana began its computer-based ERIC information retrieval service in January, 1971. Initially this joint effort of the Education Library and the University's Research Computing Center received no formal funding from the University. In September, 1971, modest funds were made available by the University to support a part-time graduate assistant position in the Education Library and a part-time computer programmer position at the computer center. This support permitted further development and expansion of the PROBE service. In September, 1972 a one-year grant was obtained from the Indiana State Library. This grant was awarded to permit extension of PROBE service throughout the state of Indiana.

It is estimated that of on-campus users of PROBE 90% are students seeking information for research projects or dissertations. The remaining users are faculty. Many searches are made for "repeat" users. At the time of the survey approximately half of the search requests processed by PROBE originated off-campus. The reason for this rather high volume of off-campus requests is that Phi Delta Kappa, national education society, which has its headquarters in Bloomington and has long been an active user of the Education Library, is a heavy user of PROBE in filling requests for information for its membership. During the fall of 1972 the project mounted a substantial publicity campaign that included distribution of over 4000 brochures to potential clients throughout Indiana as well as numberous personal presentations on the PROBE service. The effect of this effort was just beginning to be felt in January, 1973. A marked increase in off-campus requests was anticipated for subsequent months. Project PROBE does not encourage, but neither does it refuse, requests for service from clients outside the state of Indiana.

All requests for PROBE service are channeled through the reference desk in the Education Library. The reference librarian encodes search questions in consultation with those clients who are on-campus. A special PROBE input form is used. Experienced users may encode their own requests and have the librarian check the formulation for obvious errors. Completed request forms containing encoded questions are sent to the Research Computer Center for key-punching and machine processing. The output is returned to the Education Library where it is reviewed by the librarian and client jointly. Post-search questionnaires are given to users to help the project evaluate its effectiveness. About 30% of these are returned. No formal evaluation of these questionnaires has been completed yet.

Off-campus users are encouraged to encode their own searches. However, this is only feasible, of course, for those clients who have access to a copy of the ERIC thesaurus. All searches submitted by Phi Delta Kappa are encoded by their staff. All encoded questions submitted by off-campus users are reviewed in a cursory manner by the reference librarian to see that no gross errors have been committed in query information.

PROBE advertizes a turn-around time of one week. In practice, however, two or three days is the typical turn-around time.

Indiana University clients, on all I.U. campuses, receive PROBE service without charge. Non-University patrons are charged. Initially the off-campus user paid a fee of $4.00 per request. For that fee a search was made of both the RIE and CIJE files. In late 1972, the ERIC data base had grown to the point that the fee for off-campus requests was raised to $4.00 per search per file. Thus, the fee for searching both the RIE and CIJE files became $8.00. Since these new search fees for off-campus users have gone into effect most paying clients have elected to run their searches only on the RIE file. Since there has been no requirement for formal cost accounting the true costs of providing this service are not known. User charges may be adjusted in the future as system costs are more accurately determined.

The PROBE search program searches a serial file. It can search on descriptors, identifiers, authors, document accession numbers, or any combination of these and it can also search on words in the abstract of a document. Upon receipt of updates to the RIE and CIJE files from LEASCO, the PROBE master tapes are updated in such a way that the order of the records is reversed, i.e., the most recent publications appear at the front of the tape and the oldest at the back. This makes for more efficiency when searching for documents published since a certain date.

A CDC-6600 computer processes PROBE searches. All requests posed in terms of descriptors, identifiers, authors, document accession numbers, or combinations of these are processed very quickly, i.e., at tape moving speed. However, requests requiring analysis of the text of abstracts run much more slowly. Few queries submitted, however, call for such processing.

The PROBE search program has certain nominal printing limits it observes unless these are overriden by the user. Normally abstracts will be printed for only the first 100 hits. Due to the way the serial file is maintained this means the 100 most recent hits will have their abstracts printed. For additional hits only limited bibliographic information including author, titles, and accession number is printed.

Most of the PROBE software is written in FORTRAN although some of the more complex text handling routines in the search program are written in COMPASS, the assembly language for the CDC-6600.

At present all searching is done in batch mode. However, a file inversion program and an on-line search program to be used with remote teletype equipment is currently being developed.

The staff requirements of the PROBE project at present are:

(Supported formally by Indiana State Library grant)
- Project Director
- Secretary

(Supported informally through I.U. subsidy)
- Head, Education Library (part-time)
- Reference Librarian (half-time)
- Computer Programmer (half-time)

The PROBE system of Indiana University has not been adopted elsewhere. The software requires a CDC computer of the 6000 or 7000 series. If a center has such a machine it is estimated that the PROBE programs could be installed and running in not more than one month of calender time and probably much less with proper co-ordination of effort between the programming staffs of Indiana and the recipient organization. One may note from Appendix I of this report that of the 29 centers surveyed Indiana University is the only one that searches the ERIC data base using CDC equipment.

One characteristic of the CDC operating system (SCOPE) reported by the developer of the PROBE software should be noted. SCOPE does not support the processing of blocks of information on magnetic tape of the individual block size normally distributed by LEASCO. To overcome this, Indiana obtained a special utility program from Humble Oil that reads the 9-track LEASCO tapes and converts them to 7-track blocks of the smaller size required by SCOPE.

In addition to the ERIC data base processed by Project PROBE, three other machine-readable data bases are in use on the Indiana campus. These are MEDLARS, Chem Abstracts, and a special file of reports dealing with aero-space technology.

F. IOWA STATE DEPARTMENT OF PUBLIC INSTRUCTION

Iowa State Department of Public Instruction
Project "INFORMS"
Grimes State Office Bldg.
Des Moines, Iowa 50319

Mary Jo Bruett
Project Director

December 12, 1972

Project INFORMS was started by the Iowa State Department of Public Instruction in July, 1971. The acronym stands for Iowa Network for Obtaining Resource Materials for Schools. Organizationally the project is in the Educational Media Section of the department's Instruction and Professional Education Branch.

The state of Iowa is divided into 16 geographic regions by the Department of Public Instruction. Project INFORMS attempts to provide information services to all regions of the state. Early in the project county superintendents in all regions were asked to submit names of candidates who might serve as field representatives of INFORMS in their local regions. Currently 11 of the 16 regions have field representatives. These people do not receive any salary from INFORMS; they carry out their field agent duties in addition to their other assignments. Typically field representatives are local media center of the school districts in Iowa have access to the services of INFORMS through local field representatives. To insure continued close contact with the project, all field representatives are contacted weekly by telephone regardless of the current volume of requests submitted from their regions.

Some of the regional centers have strong professional libraries. In these regions some local requests may be handled at the regional centers without submitting a search request by central INFORMS. Each regional center was provided a small budget by INFORMS that permitted them to obtain copies of the printed indexes to the ERIC collection.

The users of INFORMS are estimated to be 50% local school administrators, 30% researchers and consultants on the staff of the state department, and 20% classroom teachers. However, it is known that classroom teachers throughout the state will often submit requests through a local administrator. Thus, many requests submitted to INFORMS appear to come directly from administrators but actually originate with classroom teachers.

Requests for information services are first submitted to the local field representative. This generally involves a 20-30 minute discussion of the client's specific need to insure the search will be as helpful as possible to the client. In some instances in some regions the request may be handled using the resources of the regional

information center. However, in most cases a search of the ERIC data base is undertaken. The field representatives have been trained by INFORMS to encode the search logic using the descriptors of the ERIC thesaurus. Some field representatives do this; others transmit the request to INFORMS in natural language. Requests received by INFORMS that require encoding are encoded by the staff information specialist; questions that have already been encoded are reviewed to catch any obvious errors. For each request a decision is made whether to run it against the RIE file, the CIJE file, or both. All questions are then sent to the computer facility for key-punching and machine processing.

Project INFORMS uses the search program developed by the North Dakota Resource Information Center (RIC). This program operates in two steps. Step 1 scans an inverted file and produces and saves a list of "hit" document accession numbers. This list is reviewed by the INFORMS information specialist to see whether any of the search questions should be modified due to too few or too many hits. When the list of "hits" is of reasonable size Step 2 of the program is run with the serial file of abstracts to produce the required print-out of abstracts, lists of assigned descriptors, and bibliographic information. The complete cycle from submission of questions for key-punching to receipt of final printed output typically takes about 5 days. When final print-out is received the INFORMS information specialist separates the RIE material from the CIJE and reviews the abstracts to delete obviously irrelevant material.

In order to provide as complete service as possible many computer searches of the ERIC collection are augmented by a manual search of materials available in the Department of Public Instruction library. When all searching has been completed an attractively packaged kit is sent out to the field representative for transmission to the client. This kit includes a personal letter to the client listing the materials retrieved, information on how to interpret the results of the computer search, the computer print-out segregated by RIE or CIJE file, instructions on how to order microfiche copies of documents through INFORMS, and a request assessment form that assists INFORMS in determining how effective their service is (See Volume II for sample forms). Each field representative is provided with a copy of the computer print-out for each request submitted through him. This copy retained by the local field agent may assist him and INFORMS if the request is ever resubmitted or requires modification at a future time. Typically 15-20 abstracts are sent out in response to each request.

Project INFORMS has access to the state department's ERIC microfiche collection. All document abstracts sent to clients are marked as to availability of microfiche. Clients may request fiche copies at no charge. Portable fiche readers are available at regional information centers and in many individual school districts.

The State Department of Public Instruction has many educational consultants on its staff who are specialists in various areas of education. For each request that comes to INFORMS a state consultant is identified who deals with the topic at hand and he is informed of the arrival of the specific request. When the client's output packet is prepared the client is given the name of the state consultant who could provide further assistance if required. This provides an avenue of communication between state consultant and local educator that might not exist otherwise. In Iowa state consultants do not assist local programs unless specifically requested to do so by local people.

At the outset of the project several different computer search programs were investigated for possible use by INFORMS. The RIC programs were selected and installed in July, 1972. Project INFORMS has developed no software locally.

Project INFORMS processes about 100 search requests per month on the computer.

All computer operations are carried out on a system operated by another division of the state government. The primary hardware consists of two coupled IBM 370/155 computers serving various satellite machines, among them an IBM 360/20 housed in the Department of Public Instruction. The 370/155 system has a million bytes of fast core, IBM-3330 disk storage, and operates under a HASP - OS 21.0, MVT environment. An 86-K partition of core is allocated to running the RIC search programs.

Project INFORMS has prepared a survey and bibliography on CAREER EDUCATION to augment, but not replace, ERIC searches in this area. Other pre-packaged kits on important educational topics are planned.

The INFORMS staff consists essentially of a project director and a staff information specialist who handles most of the day-to-day details of question encoding, preparation of output kits, etc. An essential element of INFORMS are the 11 field representatives who receive no salary from the project. In addition, the project has received generous support from many consultants within the state department who have contributed substantial amounts of time to assist INFORMS. Much support has been received from the state computing center both in man-time and machine-time in installing the RIC software initially and in running searches in routine operational mode. The project director of INFORMS estimates that it would take about 5 professional and 3 clerical people to replicate INFORMS services elsewhere, considering the scope of activity of field representatives and state consultants in Iowa.

G. UNIVERSITY OF IOWA

University of Iowa
Iowa City, Iowa 52240

Bruce Hemminger, University Computer Center

December 13, 1972

At the University of Iowa information retrieval of ERIC material by computer searching is supported jointly by the Education-Psychology branch library, the University Computer Center, and the University Library. This service has been provided since March, 1971.

The basic philosophy at Iowa is rather unique in that clients are not provided printed abstracts of retrieved material because nearly all users are graduate students or faculty members who have direct access to original documents or microfiche on campus.

In addition to ERIC several other data bases are searched by computer at Iowa. These include Chem Titles, Pandex, a file of political science documents, and a pharmaceutical data base that is searched on-line. In addition, there is a MEDLINE terminal on the campus.

Most of the users of the Iowa service are graduate students or faculty members in the department of education. However, many requests are submitted from various other departments on the campus. The primary use of the service is to assist students in the preparation of research reports and dissertations.

The University of Iowa Computer Center is the center of a regional computing network to which ten colleges (8 in Iowa, 2 in Illinois) are linked. In addition the University of Iowa Computer Center has direct data communication links with Iowa State University at Ames and the University of Northern Iowa at Cedar Falls. Consequently, users at many other academic institutions have convenient access to the Iowa ERIC retrieval service. Approximately 65% of the users are located on the University of Iowa campus at Iowa City with the remaining 35% at other schools.

The contact point for users of the service is the Education-Psychology library. A research assistant provided by the department of education is available 10 hours per week to assist those who wish to submit ERIC searches. The research assistant discusses the client's request and helps the user encode the question. The first time a client uses the system he is introduced to the ERIC thesaurus and the user's instruction manual for the system, told about the type of material in the file and the format of the computer output, and he essentially is an observer while the research assistant encodes the question. The intention is that repeat users will be able to encode their own requests. This has worked reasonably well in practice.

The research assistant, however, generally checks the user - encoded requests for obvious errors. Virtually all searching is done on descriptors assigned.

Each afternoon all search requests on hand are taken to the computer center for key-punching and processing that night. Output is returned to the Education-Psychology library the next morning for pick-up by the client. Due to the fact that the University of Iowa users come in person to pick up their search results within a day or two of submission of the search the research assistant does not normally review output independently. Usually such review is either left to the client or client and research assistant review the output together.

Approximately 100 search requests are handled each month. Due to student work patterns on dissertations use of the Iowa ERIC retrieval system is higher in the spring and summer than in the fall and winter.

Users are charged for searches. This is handled through computer center charge numbers. To run a search one must have a valid charge number at the center. Anyone, including off-campus users, may establish a charge number at the computer center. In practice virtually all users have access to some charge number through research projects they may be working on or some other means. As a result virtually no user pays for searching directly from his own personal funds.

Charges levied are a function of several parameters (number of descriptors in request, volume of output, etc.). The charge rate is designed to cover actual direct computation costs plus a $2.00 surcharge to help defray certain overhead expenses. The charge rate has dropped steadily as refinements have been made to the search program. The charge is now approximately $6.00 per search. The computer center keeps very complete statistics on all computing aspects of the service.

Initially Iowa used the QUERY search program. However, it proved so costly to operate that the computer center has modified it extensively; in fact that program has been changed so extensively that, for practical purposes, it may be considered the "Iowa" program rather than "QUERY." The Iowa program still searches a serial file as did the original QUERY.

There are two very distinctive features of the Iowa program. One is that, upon receipt of the tapes from LEASCO, much of the material (including abstracts) is stripped off to yield a serial file of abbreviated records. This is done to reduce the cost of passing the serial file during searching. The other major feature of the program is the provision of several contextual operators that permit searching by word prefixes, suffixes, stems, etc. An excellent user's instruction manual has been prepared explaining all features of the system with examples (See Bibliography, reference 5). Also the various computer programs that have been written have been documented from the viewpoint of a programmer who might have to maintain or modify the software. All Iowa programs have been written in IMB-360 assembly language.

All computer processing is done on an IBM-360/65. This machine has 768-K of high speed core, a million bytes of low-speed core, two IBM 2314 disk storage devices, and operates under OS (release 21.0). The Iowa search program operates in a 54-K partition and requires two tape drives and a very small amount of disk storage.

Mr. Hemminger estimates that he spent 6-9 months of effort developing the system software. In addition the service involves some time of two staff members in the Education-Psychology library plus the ¼ FTE research assistant. The University Library pays for the acquisition of the ERIC tapes from LEASCO.

The entire project is heavily subsidized by the University. Only direct computation costs are recovered through charges to the users. Development of the system was supported entirely by University of Iowa funds.

The Iowa ERIC computer programs have been distributed to Illinois State University, Ohio State University, the University of Illinois, and the University of Minnesota. The latter two have put the Iowa software into operation at their computer centers. Iowa provides a complete package of computer software on magnetic tape, program listings and documentation, user's instruction manuals, and some consulting to those other organizations acquiring their system. The ready transferability of the Iowa system to other organizations operating IBM 360 computers under the IBM Operating Systems has been amply demonstrated.

H. KANSAS STATE DEPARTMENT OF EDUCATION

Kansas State Department of Education
Project "Communicate"
120 East 10th Street
Topeka, Kansas 66612

Richard Herlig, Project Director

December 11, 1972

Project Communicate, a pilot information dissemination system of the Kansas State Department of Education, was started in December, 1971. In the words of project director Richard Herlig, the goal of the project is "a client-centered change model, not a one-stop information service."

As a pilot project no attempt is being made to provide comprehensive information service to all school districts in the state of Kansas. Instead, service is provided to 14 selected school districts. Twelve of these districts are part of a 4-level service model that has been defined for the project. For each of the four service levels defined there are three school districts that receive service at that level. Two other districts are served independently of the four-level model. Both rural and urban districts are served by Project Communicate.

The four levels of information service provided may be defined as follows:

Level 4: Full service provided by a full-time extension agent who actively solicits requests for information through presentations to school faculties, personal contacts, etc. This level of service began in April, 1972 and is provided to three rural districts in the vicinity of Lawrence.

Level 3: Service provided by a part-time extension agent. Currently Mr. Herlig is devoting one day each week to providing level 3 service to three districts in the Topeka area.

Level 2: No extension agent service provided. A project staff member makes an initial presentation, including slides, to prospective users. Brochures are distributed and questions about the project and service are answered. Thereafter communication between user and project staff is conducted by mail.

Level 1: No extension agent or personal contact. Brochures mailed to schools. All subsequent communication by mail.

It is important to emphasize that these levels reflect the amount of personal attention given by staff members to acquainting clients with Project Communicate services and to helping them submit requests. At all four levels the product is the same, i.e, printed abstracts, descriptor lists, and bibliographic information of documents believed to be relevant to their informational requirements.

Project Communicate serves a variety of users. The great majority are teachers or administrators in the 14 school districts covered by the project. Others are professional researchers and consultants on the staff of the state department of education. Occasional requests come from the field of higher education, i.e., faculty or students in departments of education at various colleges and universities throughout the state. A few searches have been run for state governmental units, e.g., legislative committees and advisory committees to the governor. Some searches have been made for the State Teachers Association in exchange for their disseminating information about Project Communicate.

Detailed monthly statistics are kept which give a breakdown of number of searches run for different catagories of users. Some issues of the project's monthly Activities Report which includes cumulative as well as monthly data may be found in Volume II of this report.

From the beginning of the project until June, 1972, Project Communicate contracted with the Northern Colorado Educational Board of Cooperative Services to carry out the actual machine searches of the ERIC data base. During the six-month period about 550 searches were made using the Colorado facility.

In the spring of 1972 negotiations were begun with the Resource Information Center (RIC) of Grand Forks, North Dakota that led to the installation of the RIC search software in June, 1972. No software has been developed by Project Communicate. Machine searches are now run on an IBM-360/50 that is installed at the Kansas State Highway Department located a short distance from the Project Communicate office. The use of this computer system for searching the ERIC data base constituted the first "outside" use of the highway department's computer facility. The 360/50 runs under HASP with a 75-K partition devoted to the ERIC search programs. One disk pack is dedicated to the RIE and CIJE inverted file and to the RIC computer programs.

Search requests are filled in the following way: Requests from Level 4 or Level 3 schools or local state department staff involve personal discussion between client and extension agent or staff member. This discussion is to insure that the user's need is clearly understood. The search request is then transmitted to the staff information specialist. Clients from Level 2 or Level 1 schools submit requests by mail. Special forms have been designed that make it convenient for users in the field to convey their search requirements to the central office. (See Volume II for sample forms.) Ambiguities

are resolved by telephone contact directly with the client.

After determining the client's need for information the next step is to decide whether that need can be satisfied by a manual search of existing material or whether a computer search of the ERIC tapes is required. In nearly all cases a computer search is undertaken. All machine searches are run against both the RIE and CIJE files.

Search questions are then encoded using ERIC descriptors. The encoding of searches for Level 4 and Level 3 clients may be done by the extension agents or may be done by the staff information specialist. All other searches are always encoded by the staff information specialist who also decides what print-out option is to be used. Usually the option providing full print-out of complete abstract and all assigned descriptors is selected. The encoded question is then key-punched. Two evenings each week searches are submitted for computer processing with the inverted files. The following morning the output, which consists of the number of hits for each question together with the accession number of each hit, is reviewed by the information specialist. Queries producing very few hits or an excessive number of hits are re-examined for possible reformulation and resubmission. Full printing of abstracts, descriptors, and bibliographic information is done each week-end and returned to the staff on Monday morning.

Upon receipt of printed output it is examined to delete any clearly irrelevant material. All print-out to be sent to the client is then attractively packaged together with an explanation of the format of the computer print-out and instructions on how to order microfiche copies of cited documents.

The Kansas State Department of Education does not have an ERIC microfiche collection in Topeka. However, Project Communicate has access to the ERIC microfiche collection at Kansas State University in Manhattan. Copies of desired microfiche are produced at KSU and sent to Topeka for distribution to clients. Project Communicate encourage its users to work with microfiche rather than with hard-copy. The monthly Activities Report lists number of microfiche documents supplied and number of individual microfiche reproduced. (See Volume II for sample Activities Reports.) Several thousand microfiche are reproduced each month.

The average number of machine searches run each month by Project Communicate is 125. Typical turn-around time from receipt of request to mailing of output is approximately one week.

Project Communicate is funded by a Federal grant. All services are provided at no cost to the user.

Some of the direct computer costs of machine searching are as follows:

1) Approximately $3.35 per search of both the RIE and CIJE files combined.
2) Cost of computer used is $200 per hour of CPU time
3) $.03 per CIJE abstract printed
4) $.05 per RIE abstract printed
5) $1.00 per 1000 lines printed

Project Communicate spends approximately $1,000 per month on computing. One person on the Highway Department computer center staff is assigned to assist the project with their computer needs. No charge is made to the project for this person's services.

The Project Communicate staff consists of approximately 8 1/2 FTE staff members. These are,

Project Director
2 Extension Agents
Staff Information Specialist
Informational Writer
3 Office Services Personnel
Part-time student worker at Kansas State University

In addition to ERIC searching, Project Communicate also prepares extensive summaries and bibliographies of key topics in education. An example of such a publication on the topic "Open Education" is included in Volume II. Preparation of these materials is a primary task of the informational writer. The monthly Activities Report gives distribution statistics on these special products. These special materials are available to users in microfiche form as well as in hard-copy.

If another organization desired to establish an information service of the scope of Project Communicate Mr. Herlig feels that 4 to 6 months should be allowed. Most of this time is involved in establishing contacts with potential users, i.e., acquainting school personnel with the services to be offered and how such information services can help them. Mr. Herlig feels that it is desirable during the early months of such a project to contract with an outside organization for computer search services and concentrate initially on building a client base. Once that has been done the computer processing can be brought "in-house" much more smoothly.

I. MASSACHUSETTS DEPARTMENT OF EDUCATION

Institute for Educational Services, Inc.
Box 208
Bedford, Massachusetts 01730

Paul Ross, Executive Director of IES
John Evans, Mitre Corporation
Alice Schafer, Mitre Corporation

January 23, 1973

The Institute for Educational Services (IES) is a non-profit organization chartered in 1971 to serve the Massachusetts Department of Education through the establishment and promotion of improved educational services. IES, which is supported by a grant from the federal government, contracts with the Mitre Corporation for many of the services required by IES. IES is physically located at the Mitre Corporation in Bedford, Massachusetts.

The ERIC information service offered by IES began to be developed early in 1972 and was publicly announced in mid-November, 1972. Thus, at the time of this survey, it has been in operation barely two months. IES is now beginning a series of presentations at regional education offices throughout Massachusetts to acquaint prospective clients with the ERIC retrieval service now available.

Perhaps the most notable characteristic of the IES service is the extreme effort and attention devoted to providing the client with relevant information. The charging structure of the service is such that most users get 50 document abstracts printed. If the search produces 75 hits the information specialist will personally review all 75 abstracts and select the 50 documents that in her judgement best satisfy the client's need. The output for that subset of all the hits will be sent to the user.

The IES retrieval system has no extension agents serving as an interface between client and system. Instead clients submit their requests directly to the IES information specialist either by telephone or by mail using a specially designed input form. The clients who submit search requests by mail are contacted by telephone by the information specialist to insure their requests are clearly understood. Using the ERIC thesaurus, she encodes the questions and indicates which specific files are to be searched. The questions are then sent to the MITRE computer center (located in the same building) for processing. There they are key-punched and, in most instances, run using the two-step inverted-file search program of the North Dakota Resource Information Center (RIC). The output from step 1 lists and saves document accession numbers of hits. The information specialist reviews this hit list and usually selects, after manual review of microfiche or hard-copy materials, the 50 hits that seem most relevant. This list of hits is submitted to step 2 of the RIC program to print

out abstracts for the client. The computer output is mailed to the patron along with a post-search evaluation form and brochure that lists all locations in the state where the ERIC collection is available on microfiche. IES staff itself does not have a microfiche collection of ERIC reports. (See Volume II for forms and brochures.)

During the first nine weeks the service has been in operation 50 search requests have been filled. As the system becomes better known through IES's publicity efforts it is expected that the volume of searches processed will rise steadily. Thus far users have been a mixture of administrators, students, teachers, public groups, and others.

IES charges are based on what files are searched and on volume of output. Normal output is 50 abstracts. Fees for the first 50 abstracts are:

RIE only	$16.00
RIE and CIJE	$19.00
RIE, CIJE, AIM, and ARM	$22.00

There is a charge of 8 1/2 cents per abstract for each abstract that is provided beyond the first 50, regardless of files searched. The charge schedule is designed to recover direct computing costs. In the brief time the service has been in operation there has been a reasonably equal distribution of searches in the different price catagories.

Two search programs are available at IES. One is the RIC program; the other is QUERY as modified by Dave Altus when he was at the Clearinghouse for Rural Education and Small Schools (CRESS), New Mexico State University, Las Cruces. The RIC search program is used in most cases. Modified QUERY is used only when it is desired to search on identifiers or abstracts.

Each encoded question has an indication as to whether the search procedure should "use RIC" or "use QUERY". Also, it indicates which data files are to be used. IES has developed a "pre-processor" program that reformats encoded queries into the form required by the particular search program to be used and also provides, in proper form for the search program, the list of files to be processed. In this way all queries can be encoded by the information specialist according to a uniform set of rules regardless of which search program will actually be run on the computer.

Another important feature of the pre-processor is the "macro-descriptor". This allows the information specialist to encode a single descriptor for a concept that might actually be represented in different ERIC documents by a variety of related terms. An example of this might be the concept "elementary grade". This concept might be indexed by terms such as "elementary level", "primary grade",

"primary level", "first grade", "second grade", etc. To relieve the question encoder of the burden of entering all the terms on a coding sheet, the pre-processor will automatically expand descriptors identified as macro-descriptors into an OR-grouping of the full set of terms that would be needed to cover that concept completely.

IES software also permits searching documents by specific accession numbers in logical combination with descriptors or identifiers. Software has also been developed to allow remote job entry (RJE) of queries. This was done when it was thought that the information specialist might be located at the state education department. However, since she works on-site at Mitre this RJE capability is not used.

IES receives six data files on a regular basis. LEASCO provides the serial and inverted files for both RIE and CIJE. RIC provides the combined AIM/ARM serial file and the combined AIM/ARM inverted file.

Searching is done on the Mitre Corporation's IBM-370/155 computer operating under IBM's Operating System, release 21.7. The computer is equipped with 1.5 million bytes of high speed core and IBM-3330 disk drives. The RIC search program runs in a partition of 80-K.

IES has placed a strong emphasis on developing "packages" of information on selected topics in education. This task was approached by building a list of 77 candidate topics for which to prepare "packages". By polling potential users in many school districts throughout the state this list was reduced to 21. These topics were then ranked in order of apparent importance. "Packages" for the top eleven topics have been prepared and work is underway on the remaining ten.

With these packages there is also being prepared a detailed listing of information available on various topics based on the documents comprising the package. For example, a package might generate a list of ten sub-topics about which substantial information can be found in the package. Such listings are now being prepared as an adjunct to the packages and will be distributed soon. This is representative of the type of "new product development" being undertaken at IES.

J. MONTGOMERY COUNTY (MARYLAND) PUBLIC SCHOOLS

Montgomery County Public Schools
Educational Materials Laboratory
850 N. Washington Street
Rockville, Maryland 20850

Karen Dowling

January 24, 1973

Computer searching of the ERIC tapes by the Montgomery County Public Schools (MCPS) is an activity of their Educational Materials Laboratory. This is the only information center surveyed that carries out machine searching for clientele at the county level. It should be noted, however, that this county school system includes 202 schools, 126,000 students, and 6,000 professional staff.

MCPS began searching ERIC tapes in 1970 using the original QUERY program distributed by the U.S. Office of Education. In 1971 Dave Altus of the South Carolina Department of Education installed his modified QUERY program at MCPS. This is the search program now in use at MCPS.

The Educational Materials Laboratory (EML) has used the ERIC collection for years conducting manual searches in response to clients' requests. Requests that can be handled by manual means are accepted by telephone or through the mail. However, when it is determined that the client can best be served by a machine search then the client is asked to come in and discuss his search request with at an information specialist at EML. There are two professional librarians at the EML library who do all client interviewing, query encoding, output analysis, etc. for ERIC machine searches. Normally the meeting with the client to discuss his particular request takes about 20-30 minutes. The librarian then encodes the request for a QUERY search and sends it to the MCPS computer center (which is located in the same building as EML) for key-punching and processing.

QUERY operates in two steps. Step 1 searches the file, determines the hits, saves them on disk for subsequent printing, and prints out a list of the hits. The librarian reviews this list to see that the number of hits is reasonable. Then at a later time the full document records, including abstract, are printed. The printed output is sent to the librarian who returns it to the client via the inter-school mail system. The turn-around time varies from 2-7 days depending upon when the request is submitted with respect to the scheduled QUERY runs at the computer center.

EML has the ERIC collection on microfiche and four fiche reader/printers available for clients to use at EML. The laboratory is open evenings and Saturdays for the convenience of MCPS clients.

Within MCPS about 85% of the professional staff are classroom teachers, yet patrons requesting computer searches of the ERIC tapes are evenly divided between classroom and non-classroom personnel. MCPS policy requires teachers to take a minimum number of graduate courses within specified periods of time. Many ERIC requests are submitted by patrons to assist them with their graduate training.

MCPS obtains both the RIE and CIJE files from LEASCO. The CIJE subscription is quite new. One of the decisions the client and librarian make is which file or both should be searched. Usually the RIE file or both files are searched. Current volume of ERIC computer searches is approximately 40 per month.

All search services at EML are free to the client. Only MCPS staff are eligible to use the service. All costs of maintaining this information service are underwritten by MCPS.

An IBM-370/145 computer is used to process the ERIC searches. All software used has been obtained elsewhere. MCPS has developed no software locally in support of this service.

It is estimated that approximately 3/4 FTE professional librarian is devoted to handling all client-system interface duties such as interviewing clients, encoding queries, reviewing output, and assisting the client when problems arise.

K. NEW ENGLAND RESOURCE CENTER FOR OCCUPATIONAL EDUCATION

New England Resource Center for Occupational Education
55 Chapel Street
Newton, Massachusetts 02160

Dr. Feruccio Freschet, Project Director
Miriam Cohen, Information Services Administrator

January 22, 1973

The New England Resource Center for Occupational Education (NERCOE) began implementation of an information system serving the six New England states in July, 1971. This service, which is funded by the U.S. Department of Commerce, is directed primarily toward the information needs of educators in vocational and technical education. The ultimate goal is a comprehensive, regional information network providing rapid access to a variety of materials as conveniently and as inexpensively as possible.

NERCOE is organized into four major divisions. The information service described here is carried on by the Educational Services Division of NERCOE.

The project employs three full-time Educational Information Consultants (EIC's), each of whom covers two New England states. The principal contact the service has at the state level is with the individual state departments of vocational education. Initially the EIC's spent much of their time planning and co-ordinating services with these state offices. An important task was to identify individuals in the various school districts who might be the best ones to approach initially about NERCOE's planned services. It was felt that this would be a better approach than simply starting with a broadside mailing of brochures to all vocational educators in the region. Now that the initial organizational phase is finished the EIC's spend most of their time dealing directly with individual clients.

During the early stages of operation NERCOE contracted for computer search services with the Northern Colorado Educational Board of Co-operative Services (NCEBOCS). However, as NCEBOCS added data bases to their system the costs and turn-around time to NERCOE increased. Alternatives for running the machine searches were sought. In June, 1972 discussions were begun with the Crowell Collier Macmillan Co. (CCM) to investigate NERCOE's possible use of the CCM MYRIAD program. These discussions led to NERCOE contracting with CCM for data base acquisition and use of MYRIAD. During the fall of 1972, use of the new system was on a prototype basis as certain refinements to MYRIAD were being made. By coincidence the first "production" run using MYRIAD was being made on the day of this survey.

The normal way of submitting requests to NERCOE is through an

EIC. This generally is done by discussing the need for information directly with the EIC. The EIC then submits the request to NERCOE in natural language form using a specially designed input sheet. All questions are encoded by professional staff at NERCOE. Since the major emphasis at NERCOE is vocational education all machine searches are run against the RIE, CIJE, AIM, and ARM files. Retrieved records are printed in their entirety, including abstracts. Normally output is returned to the client through the EIC. However, on occasion output is sent directly to the client. A "request for duplication" accompanies the computer output sent to the client. This is a form he may use to request microfiche or hard copy of specific documents of interest. Most clients have access to fiche readers. If not they may borrow portable fiche readers from NERCOE.

Turn-around time for searching is advertized to be two weeks. However, during the fall of 1972 as the MYRIAD system was being installed turn-around time occasionally exceeded two weeks.

Virtually all searching done by NERCOE is for patrons in the specific area of vocational and technical education. Most of these clients are classroom teachers. Some are principals, counselors, or consultants at district level. NERCOE is now beginning to keep detailed records of catagories of users.

A fee of $10.00 in charged for each search. This is only a token fee as the entire operation is heavily subsidized. Early in the project microfiche copies were provided free and the charge for hard copy was very low. Now fees of $.20 per microfiche and $.05 per page for hard copy are charged.

Statistics on use of the system have just begun to be gathered. From October 1, 1972 (the start-up date for prototype MYRIAD use) until January 22, 1973 exactly 250 requests had been processed.

The MYRIAD search program operates in two phases. Phase I produces and saves a list of all documents satisfying the specific request. This list is reviewed by NERCOE staff and documents are selected by the staff for subsequent print-out during Phase II. Not all hits in Phase I are printed in Phase II, i.e., the NERCOE staff weeds out the clearly irrelevant ones. MYRIAD can search on descriptors and identifiers, but not on title words or abstracts. All the MYRIAD software is written in IBM-360 assembly language. Under the contract between CCM and NERCOE, CCM provides all the RIE, CIJE, AIM, and ARM data bases on magnetic tape. Thus NERCOE obtains no ERIC tapes directly from LEASCO. Heretofore all ERIC tapes have been updated quarterly. Beginning in January, 1973, through special arrangement with CCM, the RIE and CIJE files will be updated monthly. AIM and ARM will continue to be updated quarterly.

The computer used to process NERCOE searches is an IBM-360/65 operating under the IBM Operating System in a HASP environment. The

machine is operated by a local computer service bureau.

The staff that provides this information service now consists of the following ten positions:

Project Director
3 Professional Information Specialists at NERCOE
3 EIC's in the field
2 Clerical
Assistant to handle all microfiche and hard copy duplication.

Dr. Freschet estimates the entire information service operation costs about $300,000 annually. He also estimates it costs approximately $26,000 per year to support the activities of each EIC in the field. This includes salary, overhead, travel, and miscellaneous expenses.

L. NEW MEXICO STATE UNIVERSITY

Clearinghouse on Rural Education and Small Schools (CRESS)
Box 3AP
New Mexico State University
Las Cruces, New Mexico 88003

Dr. Carroll Hall

March 19, 1973

Computer searching of the ERIC data base at New Mexico State University is carried on through the Clearinghouse on Rural Education and Small Schools (CRESS), one of the original twelve ERIC clearinghouses. Since a clearinghouse is quite distinct from an information center providing retrieval services to clients, computer searching of ERIC tapes is a secondary activity at CRESS. Consequently, CRESS does not actively promote its ERIC searching operation.

Within the Department of Education of New Mexico State University is the Education Research Center (ERC) which handles various administrative functions for externally funded projects affiliated with the department. CRESS receives administrative support from ERC.

As a somewhat informal retrieval service located on a university campus the great majority of its users are in the Department of Education. Of campus users it is estimated that 95% are students and 5% are faculty. CRESS also serves a limited number of teachers in the field. These are mostly recent graduates of the university who become acquainted with the CRESS retrieval service when they were students. Some are even former part-time employees of CRESS. In addition some searches are run for clients at the University of Texas, El Paso (UTEP). This is a recent development stemming from contacts with the head of the UTEP Education Library.

Since most patrons are on the NMSU campus requests for retrieval service normally are made in person. Typically, a student seeking information for a research project or dissertation will confer with a CRESS staff member to determine if a computer search of the ERIC tapes is appropriate. If so the staff member and patron, working together, will formulate the question using the ERIC thesaurus. Then the machine searching is done at the campus computer center. The search software is designed such that all searches are run against both the RIE and CIJE files. (Understandably CRESS does not have the AIM and ARM files.) After the computer output is returned to CRESS it is picked up in person by the client with little review by the CRESS staff. The turn-around time for the client, from initial discussion of request with CRESS staff until receipt of output, is normally one day.

The average number of machine searches of ERIC conducted by

CRESS in recent months has been 43 searches per month.

Originally CRESS searched the ERIC tapes using the QUERY retrieval program. Due to program inefficiencies major modifications to QUERY were made by Dave Altus, then of NMSU. This modified QUERY program, which searched the ERIC tapes serially, was used until late 1972. Since October 1, 1972 a new search program has been in use. This program, developed locally at the NMSU computer center, searches a combined RIE/CIJE inverted file.

CRESS found over an extended period of time that they were never searching on any fields of the computer record except descriptors. This suggested that an inverted file approach would be satisfactory for their needs. The search program that was written and is now in use can only handle questions posed in very simple logical form. For example, it cannot process questions that have more than five descriptors. However, the restrictions of the program have not proved to be a handicap to the CRESS retrieval service. Due to the availability of the computer and the rather small volume of searches it is not unusual to make a run for just one question. The program operates in two steps: step one retrieves the accession numbers of hits and step two prints full records including abstracts. There is no human intervention after step one to analyze the list of hits. The serial files obtained from LEASCO are stored on disk, not on tape. Consequently, the full bibliographic records can be accessed immediately; there is no need to pass through full reels of magnetic tape to fetch these records. Step two of the program is executed immediately following step one. NMSU is the only center surveyed whose search program processes queries in this manner. At present five IBM-2314 disk packs are used to store the combined RIE and CIJE files.

All of the software now in use is written in PL/1. The main programs are a file inversion program, a master file update program, and the search program. The search program may expand search terms to include any ERIC descriptor containing that string of characters. For example, if the client desires, the term EDUCATION could be entered and hits would be produced by documents indexed with such terms as HIGHER EDUCATION, RURAL EDUCATION, OR EDUCATIONAL PRACTICES.

Searching is done on an IBM-360/65 with 256-K memory. Two IBM-2314 direct access storage devices are attached to the system. In addition fifteen remote terminals (IBM-2741) are supported by the system. One of these typewriter-like terminals is installed at CRESS. It is used by CRESS primarily for certain management and administrative functions. Seldom are ERIC searches submitted remotely using this terminal.

The average cost per search charged the user is $14.00. The exact charge is a function of the CPU time used. In nearly all cases student users at NMSU are provided with departmental charge numbers which bear the costs of the ERIC computer searches. It is quite rare for a student to have to pay for a search from his personal funds.

Computer center charges in support of CRESS retrieval service totaled approximately $5,000 in 1972. The total cost to CRESS for all "user services", which encompass more than just computer searches, was estimated to be about $12,000 for 1972. This includes partial support for the director and a CRESS information specialist as well as 1/4 support for a programmer at the NMSU computer center.

M. NORTH CAROLINA SCIENCE AND TECHNOLOGY RESEARCH CENTER

North Carolina Science and Technology Research Center
Box 12235
Research Triangle Park, North Carolina 27709

Peter Chenery, Director

February 28, 1973

The North Carolina Science and Technology Research Center (NCSTRC) is a division of the state Department of Natural and Economic Resources. NCSTRC is one of several centers throughout the nation that are heavily supported by NASA to provide a means for disseminating to industry information resulting from NASA-sponsored research programs. NCSTRC has access within its own building to the most powerful computing equipment of any installation visited on this survey. The computer center housed at NCSTRC is organized as an independent corporation. It is the primary computer facility serving the University of North Carolina, North Carolina State University, and Duke University. NCSTRC is a major customer of this computer center.

NCSTRC provides access to several different machine readable files. Among these are NASA, ERIC, and data bases in the subject fields of textiles, air pollution, and food technology. NCSTRC began providing information retrieval service using the RIE file in May, 1969 and extended this to the CIJE file in August, 1970.

NCSTRC has defined three categories of clients. These are industrial clients, wholesale clients (e.g. a sister NASA - supported center that submits a large volume of requests), and university library clients. Most of the requests for ERIC searches come from the "university library" clients. NCSTRC does not honor requests from individuals. For a graduate student in education to obtain ERIC searching service from NCSTRC he must submit his request through his university library and the library becomes the client of NCSTRC. Currently 31 libraries in the southeastern U.S. use the services of NCSTRC as "university library" clients.

Industrial clients receive full service. This includes a thorough analysis of their request, encoding of the question for machine searching, review of the search output for relevance, and in some cases manual searching although the main emphasis at NCSTRC is on computer searching.

Wholesale clients and university library clients are expected to know the search program well enough to encode their own requests. NCSTRC staff will briefly inspect the input for obvious errors. Search output will be returned to the patron without review by the staff.

Periodically NCSTRC conducts 1 1/2-day training sessions to

instruct personnel from other organizations in the use of their system. Once a year an information specialist from NCSTRC visits each client library to bring them up to date on current features and operation of the service.

NCSTRC developed their own search program. The same program is used to search all data bases. It searches inverted files. In a first phase accession numbers of hits are determined. Full citations and abstracts are printed from a serial file in a second phase of the program.

NCSTRC receives the RIE and CIJE files from LEASCO. They immediately reformat the files, as they must with all their other data bases, to make them compatible with the common search program.

Statistics for ERIC searches during 1972 by type of client are:

	RIE	CIJE	Total
Industrial	72	66	138
Wholesale	20	19	39
University Library	113	96	209
	205	181	386

Normally all ERIC searches are run using both the RIE and CIJE files. For this reason the total of 386 machine searches probably represents about 200 requests filled and is reported accordingly in Appendix II.

In 1972 about 2000 machine searches were run, including all data bases. ERIC searches thus constituted approximately 20% of the total activity. For industrial clients ERIC was second only to the NASA file in number of requests submitted. ERIC was the third most frequently requested file by wholesale clients.

Charges for retrieval services are $55.00 per search for industrial clients and $15.00 per search for others. These charges are intended to recover only direct costs.

Searching is done on an IBM-370/165 computer that is equipped with 2 million bytes of high speed core and disk storage capacity exceeding one billion bytes (18 IBM-2314 drives and 8 IBM-3330 drives).

The NCSTRC information retrieval staff currently numbers 21 full-time employees.

N. NORTH DAKOTA RESOURCE INFORMATION CENTER

Resource Information Center
Grand Forks, North Dakota

Dr. Ed Krahmer

January 27, 1973

The Resource Information Center (RIC) began operating in 1969 under a contract with the North Dakota Department of Public Instruction. At the outset all information retrieval services were provided through manual searches of ERIC and other materials. In 1970 RIC started receiving the ERIC magnetic tapes and the QUERY search program was obtained then. Inefficiencies of QUERY prompted RIC to begin developing its own computer program to search the ERIC tapes. This program went into operation in 1971.

From July 1, 1971 to December 31, 1972 RIC was supported by a federal grant. Since the expiration of this grant this information service has continued in operation in the form of a private corporation working under contract to the North Dakota Department of Public Instruction. It should be noted that the name "Resource Information Center" belongs to the Department of Public Instruction and is not the designation of the newly-formed corporation. However, for the purposes of this report the term RIC will be used to refer not only to the information service as it operated through December 31, 1972 but also to the continuation of that service as it is now operated by the new corporation.

Prior to the period of the federal grant RIC users normally mailed requests for service directly to RIC. Then in 1971 a series of training sessions were held throughout the state at which over 50% of the school librarians in North Dakota were given thorough briefings on the services provided by RIC and its operation. The purpose was to develop a state-wide network of field agents who would be immediately accessible to clients to assist them in obtaining service from RIC. Now about 50% of the requests received are channeled through the field agents and the other half are still received directly from the patrons. Usually requests are submitted by mail, occasionally by telephone, and only rarely do users contact RIC in person to request service.

In addition to the training sessions RIC circulates a newsletter on a regular basis. This is directed primarily toward school librarians and principals but the first issue in the fall is oriented more toward classroom teachers. In addition articles about RIC appear in various publications of the Department of Public Instruction and occasionally RIC displays information about its service at state teachers' conventions.

Approximately half of RIC's clients are elementary and secondary

teachers and administrators and half are university and college faculty and students. By no means do all of the requests from higher education originate at the University of North Dakota in Grand Forks. RIC serves users at several colleges throughout the state. RIC also receives and fills some requests from outside the state. These requests are generally from patrons in elementary or secondary education, not higher education.

RIC provides searches of the RIE, CIJE, AIM, and ARM files. Normally searches are run using the RIE and CIJE files. The AIM and ARM files are searched only upon special request. Less than 5% of all searches use AIM and ARM. Of these some search AIM and ARM only while others search these files in addition to RIE and CIJE.

All encoding of questions is done by RIC staff. Field agents assist in expressing clearly the client's need for information and they also serve as the client's contact point with the service. The computer search program operates in two steps. Step one retrieves and saves records satisfying the request and prints a list of the accession numbers of hits. This list is reviewed immediately (often right at the computer) by RIC staff to insure the number of hits is reasonable before proceeding with printing in step two of the program. Turnaround to the user is a week to ten days.

During the 18-month period of the federal grant RIC processed approximately 3800 requests for an average of over 200 per month. In late 1972 the monthly average was in excess of 300. In some individual weeks more than 100 searches were run.

RIC services are free to patrons within North Dakota. Clients outside the state pay $10.00-$15.00 per search depending upon the level of post-search review requested.

All software used by RIC has been developed in-house, except, of course, for certain standard utility programs provided by the computer manufacturer. The primary programs are the two-step search program which processes an inverted file, and a file inversion program. Since an inverted AIM/ARM file is not available elsewhere RIC creates one. All RIC software is written in IBM-360 assembly language.

The transferability of the RIC search program has been amply demonstrated. Six different information centers (see Appendix II) have installed and are using the RIC program. Installation at new sites has generally been accomplished in a matter of a few days without major difficulty. Thorough documentation on the use of the RIC system aids in installing it elsewhere. The software has been run under a variety of releases of the IBM Operating System (OS) on both IBM-360 and IBM-370 computers. In addition to installing the search program at other centers, RIC also distributes to some centers copies

of its inverted AIM/ARM file.

All software was originally developed on an IBM-360/40 computer and this machine processed the searches. RIC now uses an IBM-370/135 to retrieve and save hits and print the list of hits (step one of the program) and the hits are then sorted on this machine. Actual printing of document records, including abstracts, is done on a PDP-12 computer. RIC now contracts for computer service with the University of North Dakota.

RIC has a staff of five full-time employees, four professionals, and one secretary.

O. OHIO STATE UNIVERSITY

Ohio State University
Columbus, Ohio

January 18-19, 1973

Two days were spent at Ohio State University surveying use of the ERIC data base on magnetic tape. Four distinct sites were visited. These sites and principal people contacted were:

College of Education Library - Ronald Force
Mechanized Information Center, OSU Library - Dr. C.R. Craig
Clearinghouse on Science, Mathematics, and Environmental Education - Dr. Robert Howe, Dr. Arthur White
Clearinghouse on Vocational and Technical Education - Dr. David H. Miller

I. College of Education Library

Prior to November 1, 1972 ERIC tapes were searched using the QUERY program obtained from the U.S. Office of Education. Due to the expense of operating QUERY an alternative computer searching program was sought. A viable alternative was offered by the Mechanized Information Center (MIC) of the O.S.U. Library through its established selective dissemination of information (SDI) service. This service, which encompasses many different data bases and served 1700 clients at the University in 1972, was expanded at the urging of the College of Education to include searching of the ERIC data base. The expanded service was implemented on November 1, 1972.

The service provided by MIC is essentially selection and distribution of citations of current and retrospective materials that match the client's "interest profile" which is on file at MIC. The citations, consisting of author, title, assigned descriptors, document accession number, and place where document can be found, are in the form of postcard-like notices distributed to clients through the campus mail.

Users of this service seeking information from the ERIC files follow the same general procedures as do users of the other data bases. First, the users interest profile must be defined. This is done by appointment with the reference librarian of the Education Library. The client is asked to bring to this meeting a written statement of his information need and also any published material he may have bearing on the topic he is investigating. The reference librarian then formulates the client interest profile using the ERIC thesaurus and consulting with the client. (This procedure is similar to, but more formal than, the encoding of a specific search request for one-time-only processing that occurs at most of the centers surveyed.) The profile is then sent to the MIC where it is key-punched and entered into the system. This procedure is followed both for retrospective searches and current awareness SDI requests.

Once a client's profile is submitted to MIC the reference librarian is no longer directly involved in the service except in those cases where the client feels the citations he receives are not "on-target". Then he may wish to consult with the reference librarian to redefine his profile. Normally a profile is represented to the computer system as a single question. However, it is not unusual for an individual, particularly a faculty member, to have more than one interest profile on file at the MIC.

The Education Library has the ERIC collection on microfiche and a Rem-Cord fiche reader that permits clients to quickly and conveniently access material cited by the MIC notices they receive.

College of Education users of the ERIC data base are almost exclusively graduate students working on dissertations or other individual research. Relatively few faculty members or undergraduates submit requests. However, it is believed that some faculty members submit requests indirectly through graduate students who are employed as their assistants. No statistics are available at present as to the exact percentage of users in the different catagories.

Most searches of the ERIC data base are retrospective searches. At present the full RIE tape file is on hand but the CIJE tape file at OSU is somewhat incomplete. Most retrospective searches are on the RIE file only. The normal turn-around time is 7-10 days. SDI searches of ERIC are made monthly. This is possible through an arrangement with the Clearinghouse on Technical and Vocational Education whereby MIC receives monthly updates to the ERIC data base.

There are no figures immediately available on current use of the ERIC data base at Ohio State. However, since ERIC service at MIC began on November 1, 1972, an average of 4 new user profiles have been formulated each day at the Education Library and submitted to MIC.

There is no charge to users for the services offered by the system. The University underwrites most of the expenses involved. No accurate cost estimates of the ERIC searching service are available because it is enmeshed in the total MIC operation and also the service is still quite new. It is estimated that the ERIC searching service requires the time of the Education Library reference librarian 2 hours each day.

II. Mechanized Information Center, OSU Library

This center, funded in part by a grant from the National Science Foundation, maintains the following data bases in support of its extensive SDI service:

1. National Technical Information Service (NTIS)
2. Index to Scientific Information (ISI)

3. PANDEX
4. Chemical Titles
5. Library of Congress MARC
6. ERIC

MIC started its SDI service in 1970. The total number of records in all their files now exceeds 1.2 million. Annual updating of all files now involves over 600,000 new records.

In 1972 735,000 notices were distributed to 1700 SDI patrons in the Ohio State University community. Notices generally are sent out bi-weekly. (However, ERIC notices are sent monthly in accordance with the receipt of the ERIC update tapes.) It is planned to distribute notices weekly in 1973. Over 80% of searches carried out in 1972 across all data bases were for current awareness; less than 20% were for respective searching. However, for the ERIC data base which was added to the system on November 1, 1972, most of the searches are retrospective.

The MIC search program can search on descriptors, identifiers, authors, and words in titles. However, it searches on single words only. Thus for a term like "teacher training" the program searches the descriptor field for the word "teacher" and then searches independently for the word "training". Although this does produce some false drops it has not proved to be a serious problem for clients using the ERIC file. Nearly all ERIC searches run are formulated in terms of ERIC descriptors only; seldom are identifiers, authors, or titles searched. The MIC search program does not search document abstracts.

It is planned to add the ERIC collection to the files maintained by the Ohio State University Library's automated circulation system.

The MIC computer programs operate on an IBM-370/155 computer. This machine is dedicated to serving the needs of the MIC searching service, the Library's automated circulation system, and the computer-assisted-instruction programs on the campus.

III. Clearinghouse on Science, Mathematics, and Environmental Education.

Computer searching of the ERIC data base is, of course, a secondary activity of this clearinghouse. The primary use of the ERIC data base here is in the preparation of extensive bibliographies in selected areas of mathematics education, science education, or environmental education. In effect, sub-sets of the ERIC collection are selected and cited. Not all citations in these selected bibliographies necessarily correspond to material originally entered into the ERIC system by this clearinghouse. The listings produced are reviewed independently by three professionals to insure the quality of the bibliographies.

Some searching is done at the request of authors working on professional papers. However, most of their clients have been graduate students in the College of Education who submit requests through the clearinghouse rather than the Education Library. It is estimated that the clearinghouse ran about 120 computer searches in 1972 of which some 15 were for authors. No statistics are kept concerning the clearinghouse's computer searching of ERIC files.

IV. Clearinghouse on Vocational and Technical Education

Very little computer searching is done by this clearinghouse. No statistics are kept on volume or cost. Some searches are made to support certain research programs carried on within the clearinghouse. Also, a few searches were made in 1972 at the request of authors who were commissioned by the clearinghouse to write papers that would fill in gaps in the literature in certain topical areas. The ERIC searches would generally provide state-of-the-art information to these authors at the outset of their work.

BEST COPY AVAILABLE

P. OREGON STATE DEPARTMENT OF EDUCATION

Oregon State Department of Education
942 Lancaster Drive, N.E.
Salem, Oregon 97310

George Katagiri, Department of Education
Ben Jones, OTIS

May 14, 1973

The ERIC information retrieval service of the Oregon State Department of Education was started in mid-1970 through a grant awarded by the U.S. Office of Education to establish a statewide program of information dissemination. The first computer searches conducted by the service were made in the fall of 1970.

Information is provided patrons through extension agents who play a vital role in the operation of the service. There are two full-time agents employed by the project and also 15 part-time agents throughout Oregon who perform their information service duties in addition to their other assigned tasks. The part-time extension agents are administrators within their own districts. They receive no salary support from the retrieval service budget. Since Oregon was one of three states funded to implement pilot retrieval programs the full-time extension agents were trained initially through a special program at the University of Missouri.

The extension agent serves as the contact point between the user and the system. He negotiates the search request with the client to ensure that the request is clearly understood. He explains to the client what services are available to help meet his needs. The agent transmits the request, still in natural language, to the state department in Salem. Here a trained retrieval specialist encodes the question using the ERIC thesaurus. The encoded query is then sent to the Oregon Total Information System (OTIS) in Eugene to be processed on the computer. OTIS is a service bureau, in effect, that is supported by four county school districts. It was established to provide administrative data processing service to the schools in the four districts.

Computer output is returned from OTIS to the state department in Salem. Turn-around time for this phase of the process is about one week. The retrieval specialist carefully reviews the computer output and sorts the individual abstracts into descending order of relevance. He may then annotate the computer listing to the extent of commenting on the apparent relevance of selected material. A complete packet of materials is then assembled for the client. It includes the selection form, the computer output, and a form to use to request microfiche copies of any of the documents. The packet is returned to the extension agent who delivers it to the client. The turn-around time from

the client's point of view is two weeks. The agent reviews the results of the search with the user and solicits the return of the evaluation form. A few days later the agent will follow up with the user again to determine how the search was used. He then prepares a "case summary" of the request. Case summaries may help in filling some future requests and they certainly help in evaluating the retrieval service.

The state department in Salem has the ERIC reports on microfiche. The extension agents have portable fiche readers that clients may borrow. The philosophy of the system is to encourage users to get microfiche copies rather than hard-copy although requests for hard-copy materials are not refused.

The resources normally used by the retrieval specialist are the RIE and CIJE files and a variety of materials that can be searched manually.

Users of the Oregon retrieval service include classroom teachers, counselors, principals, district superintendents, school board members, special student groups, and personnel of the state department. Requests from users in higher education are not honored unless the client is working on a project directly applicable to a public school. Requests from private and parochial schools are honored.

The files maintained by OTIS for computer searching are RIE and CIJE. Two parallel files are maintained. One is the "current" file and the other is the "history" file. The former covers 2-3 years of the most recent documents, the latter covers the documents older than 2-3 years. Virtually all searches are run against the current file.

At the outset of the service computer searching was done with the QUERY program. In 1971 machine processing was carried out under contract by the Northern Colorado Educational Board of Co-operative Services. Beginning in January, 1972 OTIS has run all the computer searches using software developed in-house.

OTIS receives tapes directly from LEASCO. The first thing OTIS does with tapes is to reformat them in more compact form. This is done by simply deleting certain fields of information. The serial files are then inverted. The search program developed by OTIS operates in two phases. Phase one uses the inverted file to select accession numbers of documents satisfying the query. There is a limit of 131 documents that may be retrieved for any given question. If this limit is exceeded an error message is printed. The retrieval specialist is notified immediately and the question is reformulated. The second phase of the program prints out all information contained in the abbreviated records. This includes the abstract. This printing step is very swift because the serial file of abbreviated records is stored on disk.

The search program can search only on descriptors. ERIC is the

only data base that is ever searched by the OTIS search program. All of the OTIS programs are written in PL/1.

Currently about 150 requests are processed each month by the Oregon retrieval service. About half of these are filled by a manual search of available resources. Approximately 75 computer searches are made each month. It is felt that the service is operating now at full capacity. The level of service offered coupled with the limited resources available make it impractical to try to handle a larger number of requests.

All retrieval services are provided free of charge to the clients.

The staff consists of a director, two retrieval specialists in Salem, two field agents, and one secretary.

Q. RHODE ISLAND STATE DEPARTMENT OF EDUCATION

Rhode Island Department of Education
Education Information Center
600 Mount Pleasant Avenue
Providence, Rhode Island 02908

Dr. Charles Mojkowski

January 25, 1973

The Education Information Center was established in May, 1972 and is supported partially with federal funds and partially with state funds. The center is located on the campus of Rhode Island State College in Providence a short distance from the Rhode Island Department of Education. The ERIC office is adjacent to the college's Curriculum Resource Center thus affording EIC immediate access to the ERIC collection on microfiche and to the other library resources of CRC.

Information service is provided to all teachers and administrators in the state according to a three-level model. Level-1 service is offered to approximately 500 teachers and administrators in three selected districts of the state. This level of service is quite thorough and includes the full services of an extension agent, in-depth searching (both manual and by computer), and reprodution of both microfiche and hard-copy materials. Level-2 service includes partial service of an extension agent, computer search of the ERIC data base, and limited microfiche and hard-copy reproduction service. Level-3 service provides computer searches and limited fiche reprodution. A more complete description of these service levels is provided in a short document written by EIC that may be found in Volume II.

The extension agents consist of one full-time agent supported entirely by EIC and 15 agents who are staff members of the state department of education and devote 20-25% of their time to the EIC program. They receive no salary support from EIC funds. All field agents are located in Providence but frequently travel throughout the state.

There is a great deal of personal contact with clients through the field agents. Potential users often first learn of EIC through their field agent who hand-delivers information about the retrieval services offered. All requests for searches are personally prepared by the field agent in the presence of the client. Requests are then forwarded to EIC where they are encoded. Key-punching is done on the Rhode Island State College campus and computer processing is carried out at Rhode Island University in Kingston.

EIC uses the two-step, inverted-file searching program of the North Dakota Resource Information Center (RIC). Step one retrieves

and saves all document records satisfying the request and prints a list of the hits. A member of the computer center staff at the University reviews the list and if the number of entries is unreasonable she reports this by telephone to EIC so the question can be reformulated. If the list is of reasonable size step two of the program is run to print full information, including abstracts, about each document retrieved. After review of output at EIC it is returned to the field agent for delivery to the client. Turn-around time from EIC's submission of encoded searches to receipt of printed output is about 5 days. Total turn-around time from the client's viewpoint is normally two weeks.

The RIC software was installed in September, 1972 and EIC began conducting machine searches on October 1. During October and November searching was done primarily for staff members of the state department of education. Service was extended to local teachers and administrators on December 1. The full 3-level model of service will begin operation February 1, 1973. From October 1 to January 25 a total of 280 searches were run. The current volume is about 25 searches per week. One batch run is made each week. The service is designed to be able to process approximately 300 searches each month with present resources.

EIC obtains the serial and inverted files for both RIE and CIJE from LEASCO. EIC also receives the inverted AIM/ARM file from RIC. At the time of the survey no machine searches had yet been run using the AIM/ARM file. Normally searches are processed using both the RIE and CIJE files.

All service to clients is free. It is estimated that the direct computer costs average about $6.50 per search. To be eligible to receive service a client must be affiliated with the school system of Rhode Island. An exception to this is that some low-level searching service is provided college faculty members.

With limited resources available and the volume of searches increasing EIC has imposed a limit of 100 abstracts that will be provided to a client. If the client searches both RIE and CIJE then 50 abstracts from each would be printed (assuming, of course, each file produced at least 50 hits).

No statistics are available yet on catagories of users served. It is estimated that since December 1, 75%-80% are teachers and the remainder are administrators at the local or state level.

An IBM 360/65 is used for all computer processing.

In addition to computer searches EIC distributes copies of PREP ("Putting Research into Educational Practice") to clients receiving Level-1 or Level-2 service. EIC will reproduce 100 copies of each PREP issue in hard-copy form to serve its users. Any requests received after the 100 copies have been distributed will be filled by sending the client microfiche copies. EIC is planning to produce and

distribute some PREP-like kits of their own in a limited way as available resources permit.

EIC has a 5-man staff. It includes the project director, a retrieval specialist, an information analyst, a full-time field agent, and a secretary. In addition, EIC directly supports a small part of the salary of a computer programmer at Rhode Island University who handles all operational matters related to EIC's computing activity.

R. SOUTH CAROLINA DEPARTMENT OF EDUCATION

South Carolina Department of Education
Center for Research Utilization
Rutledge Bldg.
Columbia, South Carolina 29201

Dr. Al Link
Alphonso J. Evans

March 1, 1973

In South Carolina information services in the field of education are provided by the Department of Education's Center for Research Utilization. This center was formed in July, 1970 when South Carolina was selected as one of three states (Utah and Oregon were the others) to be funded by the U.S. Office of Education to develop and implement statewide programs in information dissemination.

This program has designated two localities of the state, Rock Hill and Charleston, to be "target" areas that receive intensive service. All other districts throughout the state are served on a somewhat different basis. The distinction between the levels of service lies in the degree of special assistance provided by agents of the program. Two full-time field agents, supported by the project, are assigned to work in the target areas to help clients with their information needs. In the other districts this help is provided by "district representatives" on a part-time basis. These district representatives were selected by their local superintendents at the beginning of the project. Training sessions were held at the state department to familiarize them with the information resources available and the services to be offered. These district representatives carry on their field agent duties in addition to other local duties in their district. They receive no salary support from the central project. Initially 54 representatives were selected and trained. That number has risen to 67. Some districts have hired people to serve as field agents on a full-time basis. In some of the other districts the agents may devote as much as 50% of their time to helping clients use the information service. The state department has prepared a booklet describing the role and qualifications of a district representative (see Volume II).

Most of the clients of the Center for Research Utilization are in one of three catagories:

1. School personnel (teachers, counselors, principals)
2. District personnel (superintendents, curriculum specialists)
3. State department personnel

The Center keeps very complete statistics on system use. From July, 1970

through January, 1973 the number of requests filled in each of these categories was:

1.	School personnel	1,144
2.	District personnel	836
3.	State department personnel	337

The Center does provide service to some users in higher education. This is done through an agreement with the South Carolina State Library whereby university students and faculty submit their requests to the state library which forwards them to the Center. In this way the state library plays the role of a field agent serving higher education.

To use the Center's service a client confers with his local agent or district representative about his need for information. After this "negotiation" of the request it is transmitted by mail to the Center in natural language form. There it is analyzed and encoded by a retrieval specialist. The encoded request then is sent to the Department of Education computer center for key-punching and processing. Computer searches are always run against both the RIE and CIJE files. The Center does not receive the AIM and ARM files.

The output from the computer is carefully reviewed to delete any obvious false drops. The remaining citations are augmented by a manual search of ERIC printed indexes and other materials. The package returned to the client through the field agent consists of the computer print-out (complete document record including abstract), manually retrieved citations and, in some instances, Xerox copies of journal articles or microfiche copies of full documents from RIE. The latter are obtained from the state library, located near the Center. If no hard copy or fiche materials are included in the package the client is free to request them of the Center. Some local districts, including the target areas, have access to ERIC microfiche collections locally.

The turn-around time for service to the client is two weeks.

All searching service is free to school, district, or state-affiliated clients. A modest charge is made for microfiche and hard-copy duplication service. Patrons from higher education, who must submit their requests through the state library, are charged $15.00 per search.

The Center has complete data on the volume of requests it fills. The current average monthly volume is about 100 requests. (See Volume II for detailed statistics).

The Center keeps a record of the topic of each request it fills. As a result of repeated requests on certain subjects the Center has prepared "pre-packaged" bibliographies on about ten important topics and some 15 other topics have been identified as appropriate for

assembling bibliographies.

The computer used by the Center is an RCA Spectra-70/40 that is owned by the Department of Education.

The search program used is an extensive modification of the QUERY program. This modification, actually a succession of changes over a period of time, is the work of Dr. Dave Altus of the South Carolina staff, formerly of New Mexico State University. The current program is written in assembly language. A major new version is now being planned. It will be written in PL/1.

The Center staff now consists of nine full-time employees, of whom two are information specialists fully occupied with handling ERIC requests.

A thorough description of the Center's information service program can be found in The South Carolina Pilot Program for Information Dissemination (6).

S. TEXAS INFORMATION SERVICE

Texas Information Service
6504 Tracor Lane
Austin, Texas 78721

Dr. Leo Lambert, Director

March 20, 1973

The Texas Information Service (TIS) provides retrieval service based on computer searching of the ERIC data base to clients in 35 selected schools in Texas. TIS is represented by information consultants at the Texas Education Agency and in five of the twenty regional education centers in the state. Each information consultant serves 4-12 schools in his region. These consultants receive no salary support from TIS; they carry out their consultant duties for TIS in addition to their other assigned duties. The offices of TIS are located at the Austin regional education center.

July 1, 1971 marked the beginning of the project. For the first year all searching done to fill clients' requests was done manually. In mid-1972 TIS obtained the North Dakota Resource Information Center (RIC) software and commenced searching by computer.

The information consultant in the field is the contact point between the client and TIS service. When a client has a need for information he discusses it with his local information specialist to ensure that TIS has a clear understanding of what he is seeking and in what context the information provided will be used. The consultant forwards the request to TIS stated in natural language. There the question is analyzed to see whether it can be answered adequately by manual searching means or whether a computer search should be undertaken. In nearly all cases a machine search is carried out. With the RIC software this results in searching both the RIE and CIJE files. All questions to be searched by computer are encoded by a retrieval specialist at TIS.

TIS contracts with a local service bureau for computer processing. An IBM-360/30 operating under the Disk Operating System is used. When the computer output is returned to TIS all abstracts are reviewed to delete any obviously irrelevant material. The remaining document citations including abstracts and any material revealed by manual searching are sent to the consultant in the field who then transmits it to the client. Turn-around time for this service is one week.

TIS has the ERIC reports on microfiche. Upon request microfiche copies of RIE reports will be sent to the client. Most of the regional centers have fiche readers that are available to TIS patrons. About half of the users to date have requested fiche copies of retrieved documents.

The RIC batch search program was used until February 1, 1973. At that time TIS subscribed to the on-line ERIC service offered by the System Development Corporation. TIS switched to this system with the intention of trying it for at least five months to gain practical experience with this mode of operation.

The present volume of computer searches conducted by TIS averages approximately 100 per month.

TIS has prepared pre-packaged bibliographies on selected topics of importance to education. When requests in these subject areas are received they are filled quickly and inexpensively by simply sending out the appropriate package. To date five such packages have been prepared by TIS.

All retrieval services are provided free of charge to the client.

The TIS staff consists of the director, a retrieval specialist, a secretary, and two half-time employees.

T. UTAH STATE BOARD OF EDUCATION

Utah State Board of Education
1400 University Club Bldg.
136 East South Temple Street
Salt Lake City, Utah 84111

Kathy Wallentine

March 22, 1973

Utah was one of three states to be funded by the U.S. Office of Education in 1970 to establish a pilot information dissemination system. (Oregon and South Carolina were the others.)

The emphasis of the Utah program has been on serving rural schools. There are four field agents supported by the program who serve clients in different rural regions of Utah. These field agents are the people clients deal with when they want service from the program. The field agent will negotiate the patron's request, i.e. he will discuss thoroughly with the patron the need for information so that ambiguities and possible misunderstandings can be resolved at the beginning. Originally it was planned that the field agent would encode the search questions for computer processing. They were given training in how to do this. At present, however, only one of the field agents submits encoded questions to the central office; the others transmit requests expressed in natural language.

In general then question encoding is done by the central project staff. Computer searching takes place at the Utah Board of Education computer center using an IBM-370/145. Output from computer searches is returned to the project office where it is carefully reviewed and irrelevant material deleted. It is the policy of the Utah service never to print more than 25 abstracts in response to a single question. It is then returned to the client via the regional field agent.

Until November 1, 1972 Utah contracted with the Northern Colorado Educational Board of Co-operative Services (NCEBOCS) in Boulder for information retrieval services. During that period requests from field agents were sent to the central project office and then forwarded to NCEBOCS. Some requests were for specific pre-packaged products of NCEBOCS and did not result in a computer search.

Since November 1, 1972 Utah has been using the North Dakota Resource Information Center (RIC) search programs. Utah receives six files from LEASCO. These are the serial, inverted descriptor, and inverted identifier files for RIE and the corresponding three files for CIJE. This is the only center surveyed that has reported receiving the inverted identifier files. Utah does not subscribe to the AIM/ARM file. Most searching currently is done on the RIE file

alone.

The current volume of requests processed by the service is now about 70 per month. In recent months the proportion of searches for consultants and staff members of the state board has increased to the point where these clients outnumber teachers and administrators in the field.

The State Board of Education has a copy of the ERIC reports file on microfiche back to 1968. Upon request clients may obtain fiche copies of retrieved documents.

There is no charge for the services provided by this system to its clients.

BIBLIOGRAPHY

1. Krahmer, Edward and Horne, Kent. An Alternative to QUERY. Batch-Searching of the ERIC Information Collections. Resource Information Center, Grand Forks, North Dakota. August 1, 1972. 55p. (ED 063 519)

2. Computer Resources Corporation. QUERY - A Universal Search System. CRC, 6825 Redmond Drive, McLean, Virginia 22101. March, 1970. 28p.

3. Bracken, Paula. OTIS Basic Index Access System (OBIAS). Oregon Total Information System, Eugene, Oregon. January, 1972. 18p. (ED 061 979)

4. Frobish, Marian J. SLIC - Search of the Library Information Collection. Bradley University, Peoria, Illinois. 1972. 38p. (ED 066 199)

5. Hemminger, Bruce. Automated Search of the ERIC Files (Report Resume File and Journal Article File). Users Instruction Manual (Volume 1, Level 2). University of Iowa, University Computer Center, Iowa City, Iowa. August 1, 1972. 18p. (ED 066 209)

6. South Carolina Department of Education. The South Carolina Pilot Program for Information Dissemination - A Narrative Report. July, 1970 to December, 1971. State Department of Education, Columbia, South Carolina. 1972. 170p.

7. McCleary, William H. Information Retrieval Center of the Northern Colorado Educational Board of Cooperative Services. Final Report, Fiscal Year 1971-72. Boulder, Colorado. August 25, 1972. 161 p. (ED 067 134)

8. Kiewitt, Eva L. PROBE Computer Search of the ERIC Tapes. Indiana University, School of Education, Bloomington, Indiana. May, 1973. 9p. (ED 075 050)

9. Tschudi, Ronald R. and Meredith, Joseph C. The PROBE Retrieval Program - A Description. Indiana University, Bloomington, Indiana. February 10, 1972. 15p. (ED 059 596)

10. Fry, Bernard M. Evaluation Study of ERIC Products and Services
    a. Volume I of IV (ED 060 923)
    b. Volume II of IV (ED 060 924)
    c. Volume III of IV (ED 060 925)
    d. Volume IV of IV (ED 060 926)
    e. Summary Volume (ED 060 922)
    Indiana University, Bloomington, Indiana. March, 1972.

11. Bruett, Mary Jo, Borlin, Kathy, and Carey, Russell L. Iowa Network for Obtaining Resource Materials for Schools (INFORMS). Activities Manual: Operational and Promotional. Iowa State Department of Public Instruction, Des Moines, Iowa. September, 1972. 148p. (ED 069 305)

12. Montgomery County Public Schools. Educational Materials Laboratory. ERIC Computer Search Survey. Rockville, Maryland. 1973. 10p.

13. Miller, David H. Guide to State Information Resources. Center for Vocational and Technical Education, Ohio State University, Columbus, Ohio. December, 1972. 109p.

14. Kowitz, Gerald T. et al. General Information Processing System: The GIPSY/ERIC Abstract Retrieval System. Oklahoma University, Norman, Oklahoma. 1971. 89p. (ED 047 763)

15. Kowitz, Gerald T. GIPSY/ERIC. Presentation made at the ERIC Data Base Users Conference, Downingtown, Pennsylvania. September 21-22, 1972. 14p.

16. Link, A.D. EQUIP - Requester-to-System CAI Interface with a Batch Processing Automated Information Retrieval System. State Department of Education, Columbia, South Carolina. September 22, 1972. 24p.

17. Wilder, Dolores J., Ed. Tennessee Information Retrieval and Dissemination System for Vocational Education. Final Report (July 1, 1970 - June 30, 1971). Tennessee Occupational Research and Development Coordination Unit. Knoxville, Tennessee. June 30, 1971. 70p. (ED 056 215)

18. Lindsay, Kenneth P. Utah's Pilot State Dissemination Program. Final Report. Utah State Board of Education, Salt Lake City, Utah. May, 1973. 99p. (ED 078 858)

19. Brandhorst, W.T., Price, D.S., and Marra, S.J. Characteristics of the ERIC Base (Material for Distribution at the ERIC Data Base Users Conference, Downingtown, Pennsylvania). September 21-22, 1972. 22p.

20. Brandhorst, W.T. Managing the ERIC Data Base. (Presented at the AFIPS Fall Joint Computer Conference, Seminar on Information Data Centers, Anaheim, California. December 5, 1972. 34p. (ED 069 303)

21. CCMI-ERIC Retrospective Search Tape Services. CCM Information Corporation. New York, New York. 1972. 5p.

APPENDIX I.:

ERIC Survey Guide

ERIC SURVEY GUIDE

I. General Information

- A. Organization (name, location, phone)
- B. Organizational Setting (e.g., budgeted facility within a University)
- C. Date of Survey
- D. Personnel Interviewed
- E. Start-up of this ERIC Center
  - 1. Date
  - 2. Initial services

II. Services Offered

- A. ERIC Files Used
- B. Other Files
- C. Search Facilities for ERIC Files
  - 1. Batch
    - a. QUERY (as supplied)
    - b. QUERY (modified)
    - c. Other
- D. Assistance Provided in Query Formulation
  - 1. No assistance provided by center
  - 2. Center assistance in:
    - a. Logical structuring of query
    - b. Use of thesaurus
  - 3. Method
    - a. Person-to person
    - b. Telephone
    - c. Mail
  - 4. Additional sources of assistance to user
- E. Charging Basis
  - 1. Free
    - a. To whom
    - b. How much service (e.g., how many free searches)
    - c. Duration of free service
  - 2. Cost recovery--what costs are intended to be recovered by charges
  - 3. Profit intended
  - 4. What is the cost to the user per search

III. Users Served

- A. Types of User Groups
  - 1. Teachers
    - a. Primary schools
    - b. Secondary schools
    - c. Higher education

2. Researchers

a. Student
b. Professional

3. Administrators

a. School-affiliated
b. Government

B. Prior Experience of Users

1. With ERIC services
2. With other computer-based services

a. On-demand retrieval
b. SDI

C. Users' Purposes in Using ERIC

1. Research
2. "Reduce-to-practice"
3. Administration

IV. Center-User Interface

A. Promotion of Services, "Advertising"
B. Initial Introduction

1. How was user first referred to this center
2. What materials describing use of this center are available to users
3. Site visits by users or by center staff

C. Query Formulation

1. Use of thesauri; which ones
2. Boolean expressions
3. Other tools to aid users (e.g., frequency lists)

D. Analysis of Results

1. Routine review of output by center staff
2. User feedback on precision, etc.

E. User input to updating of system

1. Updating of document files (RIE, CIJE, etc.)
2. Updating of thesaurus
3. Suggestions for new features in system

F. Users Advisory Panel

V. System Usage

A. Number of Requests per Week; per Month; per Year

1. Sources of requests (i.e., by types of users)
2. Files accessed

a. ERIC files
b. Other

3. Mode

a. Batch
b. On-line

B. Rate of Growth for Items in "A" above
C. Query Formulation

1. By user
2. Assisted by center

VI. System Performance

A. Gross Performance Time, i.e., how many hours of computer time to handle what volume of queries over how long a time span
B. Computer Time Requirements

1. Query preparation (i.e., reformatting, etc.)
2. Searching
3. Output

C. Turn-around Time
D. Means for Evaluation of System Performance

1. By users
2. By center

E. How Well Does System Serve Users' Needs

VII. Software

A. System Software Used (e.g., OS-release 19.6)
B. Search Software

1. Ease of use
2. Limitations

a. Number of queries per batch
b. Number of descriptors per query
c. Complexity of logic (limit on # of operators?)
d. Output options
e. Other limitations

C. File Maintenance Software

1. ERIC-supplied
2. Locally developed or modified
3. Any special problems

D. Programming Languages Used
E. Any Special Software (e.g., locally developed macros)

VIII. Hardware

A. Main-frame

1. Manufacturer
2. Model
3. Core size

B. Auxiliary Storage

1. Disk units
2. Tape drives
3. Other

C. Remote Terminal Equipment

1. Terminals
2. Modems
3. Data transmission facilities

IX. System Maintenance and Improvement

A. Frequency of Updating of Master Files
B. Error Handling

1. Problems during file updating
2. Problems during search

C. New or Modified Features Incorporated in System

1. How is need for system change determined
2. How are changes implemented

a. Administratively
b. Technically

X. Costs of Current Operations

A. Center Staff

1. Administrative/technical management
2. Programming/analysis
3. Other

B. Hardware (computer related)

1. Monthly equipment rental or lease
2. Machine charges; what charging algorithm is used

C. Operational Services

1. File acquisition
2. Telephone
3. Mailing
4. Other

D. Other Costs

XI. Transferability

A. Experience installing this system here and elsewhere
B. Computers to which this system could be transferred
(manufacturers, models)
C. Special hardware requirements
D. Special software requirements

1. Operating system
2. Local macros
3. JCL changes

E. Existing documentation

1. ERIC-supplied

a. Record formats
b. Program logic

2. Locally developed

a. Document files, thesaurus, etc.
b. Search and maintenance programs
c. System support programs
d. Users' experiences

3. User-supplied

F. Itemized list of all files and programs required to install this same service at another site

G. Manpower estimates

1. Initial installation at this center

a. Administrative/technical management
b. Programming/analysis
c. Other

2. Reinstallation at another site (estimates for both sites)

a. Administrative/technical management
b. Programming/analysis
c. Other

H. Cost estimates

1. Initial installation at this center

a. Manpower
b. Equipment

2. Reinstallation at another site (estimates for both sites)

a. Manpower
b. Equipment

I. Calendar time estimates

1. For initial installation at this facility
2. For transfer of this service to a new site

XII. Brief narrative description of this Facility's Operation

XIII. Comments (including any special services or unique features incorporated in this center's operation)

APPENDIX II.:

Table of Selected Survey Findings

BEST COPY AVAILABLE

Survey of Selected Centers that Search the ERIC Data Base in Batch Mode

Organization	Principal Contact Person	Date of Survey and (SV) or (T)*	Search Software	Computer Used	Average # of Machine Searches/Mo.	Average Cost to User	Typical Users	ERIC Files Processed	Are ERIC Operations Part of an SDI Service	Has This Search Software Been Installed Elsewhere
Bradley University College of Education Project "AIDE" Peoria, Illinois 61606 (309) 676-7611, x 223	Dr. Robert Thomson "AIDE" Director Mrs. Marian Frobish Comp. Center Dir.	Jan. 16 - SV	Bradley's SLIC	IBM 370/135	67	free (Bradley) $10.00 off campus users	students and faculty	RIE CIJE	No	No
University of Calgary Info. Systems Library 2920 24th Ave., N.W. Calgary, Alberta (403) 284-6221	Oldrich Standera	May 4 T	Calgary mod. of IBM TEXT-PAC	IBM 360/50	2 retrospective + 27 SDI profiles	$5.00	faculty & grad students	RIE CIJE	Yes	No
Nat'l. Library of Canada SDI Division, CAN/SDI Project 395 Wellington St. Ottawa, Ontario K1A ON4 (613) 992-0474	Helen P. Rogers Chief, SDI Div.	May 7 T	local CAN/SDI	IBM 360/50	5 retrospective + 13 SDI profiles	$30.00 (retros $46.00 SDI)	educ. researchers at federal & provincial level	RIE CIJE	Yes	Yes
Northern Colorado Educational Board of Cooperative Services (NCEBOCS) 830 S. Lincoln Street Longmont, Colorado 80501 (303) 772-4420	Linda Simons Coordinator, Information Services Rocky Petrocchi	March 21 SV	locally developed search program	Univac 9400	215	free to Colorado users; by contract to non-Colorado users	teachers, administrators, consultants	RIE CIJE AIM ARM	Yes	No
Florida ERIC Department of Education Knott Bldg. Tallahassee, Florida 32304 (904) 488-2986	Robert E. Hancock FERIC Administrator	Feb. 27 SV	South Carolina Modification of QUERY	IBM 360/40	40	free	broad mixture of teachers, administrators, students, & faculty	RIE CIJE AIM ARM	No	yes
University of Georgia Computer Center Athens, Georgia	Dr. James Carmon Computer Center Director Margaret Park	March 2 SV	their own software	IBM 360/75	100	free	students and faculty	RIE CIJE	Yes	No

* (SV) site visit, (T) telephone

BEST COPY AVAILABLE

Survey of Selected Centers that Search the ERIC Data Base in Batch Mode

Organization	Principal Contact Person	Date of Survey and (SV) or (T)*	Search Software	Computer Used	Average # of Machine Searches/Mo.	Average Cost to User	Typical Users	ERIC Files Processed	Are ERIC Operations Part of an SDI Service	Has This Search Software Been Installed Elsewhere
ERIC Clearinghouse on Early Childhood Education University of Illinois 805 W. Pennsylvania Ave. Urbana, Ill. 61801 (217) 333-1386	Susan Thomas Ass't. Director	May 9 T	mod. of U. of Iowa mod. of QUERY	IBM 360/75	50	$7.00	students, faculty, early childhood educators	RIE CIJE AIM ARM	No	Yes
Project "PROBE" Education Library School of Education Indiana University Bloomington, Indiana 47401 (812) 337-1798	Robert Benninghoff PROBE Director Eva Kiewitt Head, Educa. Library	Jan. 17 SV	Ind.'s PROBE	CDC-6600	150 (half of these are for ΦΔκ)	free (on campus) $8.00 (off campus)	students, faculty and ΦΔκ clients	RIE CIJE	No	No
Iowa State Dept. of Public Instruction Project "INFORMS" Grimes State Office Bldg. Des Moines, Iowa 50319 (515) 281-3475	Mary Jo Bruett Project Director	Dec. 12 SV	North Dakota RIC	IBM 360/20 linked to an IBM 370/155	100	free	teachers and administrators	RIE CIJE	No	Yes
University Computer Center University of Iowa Iowa City, Iowa 52240 (319) 353-3893	Bruce Hemminger Head, Information Retrieval Services	Dec. 13 SV	U. of Iowa mod. of QUERY	IBM 360/65	100	$6.00	grad students and faculty	RIE CIJE	No	Yes
Kansas State Dept. of Educa. Project "COMMUNICATE" 120 E. 10th St. Topeka, Kansas 66612 (913) 296-3136	Richard Herlig Project Director	Dec. 11 SV	North Dakota RIC	IBM 360/50	125	free	teachers and administrators	RIE CIJE	No	Yes
Institute for Educ. Services (Mass. Dept. of Education) c/o Mitre Corp. P.O. Box 208 Bedford, Mass. 01730 (617) 271-2257	Paul Ross Director, IES John Evans (Mitre) Alice Schafer (Mitre)	Jan. 23 SV	mod. QUERY & mod. N. Dak. RIC	IBM 370/155	25	$19.00	broad mixture of students, teachers, consultants, administrators and public groups	RIE CIJE AIM ARM	No	Yes

* (SV) site visit, (T) telephone

BEST COPY AVAILABLE

Survey of Selected Centers that Search the ERIC Data Base in Batch Mode

Organization	Principal Contact Person	Date of Survey and (SV) or (T)*	Search Software	Computer Used	Average # of Machine Searches/Mo.	Average Cost to User	Typical Users	ERIC Files Processed	Are ERIC Operations Part of an SDI Service	Has This Search Software Been Installed Elsewhere
University of Minnesota College of Educ. Library Minneapolis, Minn. (612) 373-3841	Celia Ellingson	Jan. 9 T	U. of Iowa mod. of QUERY	IBM 360/50	30	$10.00	students and faculty	RIE CIJE	No	Yes
Montgomery County Public Schools Educational Materials Lab 850 N. Washington Street Rockville, Maryland 20850 (301) 279-3228	Karen Dowling	Jan. 24 SV	Modified QUERY	IBM 370/145	41	free	teachers and administrators (Montgomery Co. only)	RIE CIJE	No	Yes
New England Research Application Center (NERAC) Mansfield Professional Park University of Connecticut Storrs, Connecticut 06268 (203) 429-6421	Dr. Daniel Wilde Acting Director	Jan. 26 SV	Their own search program	IBM 1130	3 retrospective + 30 SDI profiles	$50.00 (retroe.)	industrial (retroe.) U. of Conn. (SDI)	RIE CIJE AIM ARM	Yes	No
New England Resource Center for Occupational Education (NERCOE) 55 Chapel Street Newton, Mass. 02160 (617) 969-7100	Dr. Furuccio Freschet	Jan. 22 SV	CCM-"Myriad"	IBM 360/65	65	$10.00	teachers, administrators and consultants	RIE CIJE AIM ARM	No	No
CRESS Clearinghouse Box 3AP New Mexico State University Las Cruces, New Mexico 88003 (505) 656-2623	Dr. Carroll Hall Associate Director	March 19 SV	locally developed inverted file search program	IBM 360/65	43	$14.00	students and faculty; school administrators	RIE CIJE	No	No
Educ. Prog. & Studies Info. Services Rm. 301, EBA New York State Dept. of Edu. Albany, N.Y. 12224	Whitney Wilkes Director ERIC Services	May 7 T	N. Dakota RIC	N. Dak. RIC hardware facilities	100	free	teachers & administrators throughout N.Y.	RIE CIJE	No	Yes
North Carolina Science and Technology Research Center Box 12235 Research Triangle Park, North Carolina 27709 (919) 549-8291	Peter Chenery, Director Mary Ann Williamson	Feb. 28 SV	their own software	IBM 370/165	16	$15.00 to $55.00	industrial clients, faculty, students	RIE CIJE	No	Yes

*(SV) site visit, (T) telephone

BEST COPY AVAILABLE

Survey of Selected Centers that Search the ERIC Data Base in Batch Mode

Organization	Principal Contact Person	Date of Survey and (SV) or (T)*	Search Software	Computer Used	Average # of Machine Searches/Mo.	Average Cost to User	Typical Users	ERIC Files Processed	Are ERIC Operations Part of an SDI Service	Has This Search Software Been Installed Elsewhere
Resource Information Center (RIC) 1021 S. 20th Street Box 8009, University Station Grand Forks, North Dakota 58201 (701) 777-2511	Dr. Ed Krahmer Director	Jan. 27 SV	North Dakota RIC	IBM 360/40 IBM 370/135 PDP-12 (printing)	250	free	teachers, administrators and faculty and students	RIE CIJE AIM ARM	No	Yes
College of Education Library Ohio State University Columbus, Ohio	Ronald Force Education Library	Jan. 18-19 SV	O.S.U.-developed	IBM 370/155	data not available	free	grad. students faculty	RIE CIJE	Yes	No
University of Oklahoma College of Education 820 Van Vleet Oval Norman, Oklahoma 73069 (405) 325-6227	Dr. Gerald Kowitz Assistant Dean	March 5 SV	Oklahoma GIPSY	IBM 360/40	5	free	students and faculty	RIE CIJE	No	No
Oregon State Dept. of Edu. 942 Lancaster Dr., N.E. Salem, Oregon 97310 (503) 378-3968	George Katagiri Director, Instructional Technology	May 14 SV	OTIS (service bureau)	IBM 360/50	25	free	teachers, administrators, educ. consultants	RIE CIJE	No	No
Rhode Island State Department of Education Education Information Center 600 Mt. Pleasant Avenue Providence, Rhode Island 02908 (401) 831-6600, ext. 666	Charles Mojkowski Director	Jan. 25 SV	North Dakota RIC	IBM 360/65	100	free	teachers and administrators (R.I. only)	RIE CIJE	No	Yes
South Carolina Department of Education Center for Research Utilization Rutledge Bldg. Columbia, South Carolina 29201 (803) 758-2301	Dr. Al Link Alfonso Evans	March 1 SV	South Carolina Modification of QUERY	RCA Spectra 70/40	100	free	teachers and administrators	RIE CIJE	No	Yes
Bureau of Educational Research and Service College of Education University of Tennessee Knoxville, Tennessee (615) 974-3338	Dee Wilder	March 29 T	modified QUERY	IBM 360/65	25	free to VOC-TECH users; $15.00 to others	teachers, administrators, consultants, students, faculty, VOC-TECH specialists	RIE CIJE AIM ARM	Yes	No

*(SV) site visit, (T) telephone

Survey of Selected Centers that Search the ERIC Data Base in Batch Mode

Organization	Principal Contact Person	Date of Survey and (SV) or (T)*	Search Software	Computer Used	Average # of Machine Searches/Mo.	Average Cost to User	Typical Users	ERIC Files Processed	Are ERIC Operations Part of an SDI Service	Has This Search Software Been Installed Elsewhere
Texas Information Service 6504 Tracor Lane Austin, Texas 78721 (512) 926-8080	Dr. Leo Lambert Project Director	March 20 SV	North Dakota RIC (to Jan. 31, 1973) SDC ORBIT Feb. 1, 1973-	IBM 360/30 Tymshare-100 terminal	100	free	teachers, administrators and educational consultants	RIE CIJE	No	Yes
Utah State Board of Education 1400 University Club Bldg. 136 East South Temple Street Salt Lake City, Utah 84111 (801) 328-5431	Kathy Wallentine Project Manager	March 21 SV	North Dakota RIC	IBM 370/145	70	free	teachers, administrators, specialists	RIE CIJE	No	Yes
Virginia State Dept. of Edu. Research & Statistics Dept. Richmond, Virginia 23216 (703) 770-2068	Philip F. Boepple Supervisor of Special Studies	May 4 T	Mod. QUERY	IBM 360/25	3-4	free	Administrators, consultants in State Dept.	RIE	No	Yes

*(SV) site visit, (T) telephone

BEST COPY AVAILABLE

RECENT ILR PUBLICATIONS

Publication of papers and reports of interest to scholars and practitioners in the field of library and information science is an important function of the Institute of Library Research. In addition to this study, the following have been published recently by ILR.

ILR-73-001 Todd, Judy, Summary Report of Student Studies of the Subject Headings Used in the University of California, Berkeley Subject Catalog (July 1973) 8 pp. (ERIC NO. ED-082 775)

ILR-73-002 Bourne, Charles P., and Jo Robinson, SDI Citation Checking as a Measure of the Performance of Library Document Delivery Systems (July 1973) 10 pp. (ERIC NO. ED-082 774)

ILR-73-003 Weeks, Kenneth, Determination of Pre-Acquisition Predictors of Book Use: Final Report (July 1973) 20 pp. (ERIC NO. ED-082 776)

ILR-73-004 Weeks, Kenneth, Proposal for a University of California/California State University and Colleges Inter-Segmental Machine Readable Library Patron Card (August 1973) 21 pp. (ERIC NO. ED-082 777)

ILR-73-005 LeDonne, Marjorie, "Summary of Court Decisions Relating to the Provision of Library Services in Correctional Institutions," Association of Hospital and Institution Libraries Quarterly (Winter/Spring 1973) 9 pp.

ILR-73-006 Thelin, John, and Bonnie F. Shaw (editors), Institute of Library Research Annual Report: July 1972 to June 1973 (September 1973) 30 pp.

ILR-73-007 Dekleva, Borut, Uniform Slavic Transliteration Alphabet (USTA) (October 1973) 82 pp. (ERIC NO. ED-086 164)

ILR-73-008 LeDonne, Marjorie, Findings and Recommendations. Volume I, Survey of Library and Information Problems in Correctional Institutions (January 1974).

ILR-73-009 LeDonne, Marjorie, Access to Legal Reference Materials in Correctional Institutions. Volume II, Survey of Library and Information Problems in Correctional Institutions (January 1974).

ILR-73-010 LeDonne, Marjorie, David Christiano, and Jane Scantlebury, Current Practices in Correctional Library Services: State Profiles. Volume III, Survey of Library and Information Problems in Correctional Institutions (January 1974).

ILR-73-011 LeDonne, Marjorie, David Christiano, and Joan Stout, Bibliography. Volume IV, Survey of Library and Information Problems in Correctional Institutions (January 1974).

ILR-73-012 Gregor, Dorothy, Feasibility of Cooperative Collecting of Exotic Foreign Language Serial Titles among Health Sciences Libraries in California (February 1974) 44 pp.

ILR-74-001 Nozik, Barbara, The Use Status of Books Requested from the University of California, Berkeley, Inter-Library Loan (March 1974) 11 pp.

ILR-74-002 Bourne, Charles P., Annual Report, Institute of Library Research, July, 1973-June, 1974, University of California, Berkeley, 1974.